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Paper Industry to Maintain Present Wage Scale

Manufacturers of Paper and Pulp, At Open Meeting Held In Waldorf-Astoria Hotel, New York, Reaffirm NRA Code In Present Form—Urge That No Increase Be Made In Code Wage Rates Until Industry Is Able to Carry Added Burden—Committee to Confer With NRA On This Matter—Smaller Mills to be Represented on Committee

There was an exceptionally large attendance at the Open Meeting of the American paper and pulp industries, held at the Waldorf-Astoria Hotel, New York, last Thursday, in which the Executive Authorities of Divisional Associations and the Paper Industry Authority played important parts.

S. L. Willson, president of the American Paper and Pulp Association, and chairman of the Paper Industry Authority, occupied the chair and in opening the proceedings addressed the gathering as follows:

S. L. Willson Discusses What Lies Ahead

It is a pleasure to greet you this morning and to note the apparent interest in our industry problems as evidenced by your attendance today in such full numbers. In the past eighteen months we, as an Industry, have had presented to us many new and old problems for consideration and solution. These have developed from the past and existing unsatisfactory general business conditions with which we have been and are still endeavoring to cope in a practical and business like manner.

American industry still struggles with the depression. The road back to normalcy, to borrow a phrase from a former administration, has proven to be longer and more difficult than most of us anticipated. Yet there is one solace; we *are* on the way back to normalcy; descent into further depression was checked over a year ago.

In common with other industries, the paper and pulp industry has undertaken cooperative effort under the sponsorship of NRA. There is but little difference of opinion as to the broad results of this effort. The industry has benefited; it is as a whole in a much healthier condition today than it was eighteen months ago. The P. I. A. has called this meeting to obtain the industry's consideration as to whether the road that we have elected to follow is the best road and whether the benefits that have accrued are the most that we can obtain under the circumstances.

Shall the Code Be Amended?

This meeting comes at a time, moreover, when questions of code policy have been raised that require industry decision. Shall the industry proceed now with a general program of code amendment, submitting from time to time such amendments as we may reasonably expect will be acceptable to the NRA? If the answer to this question is in the affirmative, what wage rates shall we recommend to the NRA? If we decide to await a further clarification of NRA policy before amending our Code, shall the industry recommend wage rate increases pursuant to the condition of approval of the General Code?

Whether or not we submit amendments to the Code hinges upon the industry's attitude toward increased wages. The President made a review of the wage rates at an open hearing a condition of his approval of the General Code. Such a hearing was held on February 13. At that time changes were not recommended. Later the industry decided to revise its Code to include trade customs and standards, control of machine shifting and installation, and to modify the price filing provisions, in consideration of which control provisions the industry proposed an increase of 4 cents per hour in the minimum rates then in effect. The proposed Code was not too gently received by the NRA.

The question now is shall the industry recommend changes in wage rates to meet the conditions of the President's Executive Order; shall it stand upon its Code as originally approved; or is it willing to abide by such recommendation as the NRA itself may make? These questions, I hope, you will be free in discussing.

Criticism of the P. I. A.

The Paper Industry Authority is designated as the chief administrative agency of the General Code. Executive Authorities are designated as administrative agents of the Divisional codes. The former has concerned itself with general administrative features and the members of the Paper Industry Authority themselves have acted in the capacity of a Board of Appeals in so far as relationships with the Executive Authorities and the Divisions have been concerned. The assumption of a definite leadership on the part of the Paper Industry Authority was hardly compatible with this policy.

Whether this policy was sound or whether the P. I. A.

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Moderate Increase In News Price Imperative

Due to Increasing Operating and Labor Costs, Premier Taschereau, of Quebec, Canada, Warns That Punitive Measures Will Be Taken By Government Against Any Manufacturer Refusing to Co-operate In Maintaining Quotations At Satisfactory Level

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 15, 1934—Premier Taschereau has dropped a bombshell into the newsprint camp here by the announcement that punitive measures will be taken by the Quebec Government against any newsprint manufacturing company which will not cooperate with the others in securing a reasonable price level for newsprint, and Premier Hepburn, of Ontario, has dropped another bombshell by the announcement that he will take similar measures in respect to any such recalcitrant companies in Ontario. Thus a crisis has suddenly been precipitated in respect to what one news agency here describes as "The billion dollar industry which for years has been deliberately ruining itself."

Premier Taschereau's action followed a report, of which particulars were published in last week's issue of the PAPER TRADE JOURNAL, that one of the paper making companies here had made independent contracts with large consumers in the United States by which its mills would be kept running at capacity, and at prices which would militate against a readjustment of schedules.

Statement Issued from Government Offices

Premier Taschereau, in a statement issued from the Government offices at Quebec, said:

"Reports have reached me that the St. Lawrence Paper Company, alone of all Canadian companies, has fixed a price for newsprint with one of its customers for all of 1935 at the existing ruinous level," stated the Premier.

"I hope this will prove not to be true but I wish to announce that this Government cannot tolerate such complete disregard of the public interests. Increasing costs and the increasing needs of our workmen have made imperative a moderate increase in the price of newsprint.

"This Government has been cooperating with the industry in its distress by giving special reductions in stumpage rates and other concessions, but if any Quebec company so ignores the common good the Government will withdraw all aid from such company and take all measures necessary to protect the interest of the province."

In Government circles the statement caused no surprise in view of the fact that the price which was set last year and accepted by the leading pulp and paper companies, that is $41 per ton, was admitted by experts to be too low to be maintained this year in view of the increased cost of production. It was pointed out that some time ago companies had arranged a plan by which the price of newsprint would be raised $5.00 per ton and the unconfirmed report that the St. Lawrence Paper Company had dropped out or was going to drop out on the 15th of October next was astonishing to the other firms interested. It was stated that at present a large number of companies were being paid in American funds which meant on account of the rate of exchange a loss on the price of newsprint. Added to this through legislation adopted at the last session, the majority of lumberjacks were benefiting from an increase in wages and provision had been made for a uniform cord of 128 feet.

These two last changes above were also affecting the cost of production and it was thought to be out of the question to sell newsprint under $45.00 or so without wrecking the whole industry.

In addition, a high official pointed out that an increase of $5.00 per ton means an additional distribution of ten million dollars in the province this year.

While Premier Taschereau would go no further than the statement above quoted, it was admitted that he intended to give no favor of any kind, no reduction in the stumpage dues, to the firm mentioned in his interview, unless he was assured that the general agreement would be observed by all. From another source it was reported that the rumor which raised the protest had it that the company mentioned had advised the other firms that it would consider itself independent as to prices from the 15th instant.

Premier Hepburn's Statement

Premier Hepburn, in the statement he handed out from the Ontario Government offices, said:

"Having read the statement of Premier Taschereau with respect to a certain paper company operating in the Province of Quebec, which company is alleged to be engaged in a price-cutting attempt on newsprint, I wish to make it known I am heartily in accord with the Premier of the Province of Quebec when he states such a move would be ruinous to the newsprint industry in Canada.

"I am certainly sympathetic towards any and all moves that may be taken that will, in the final analysis, mean an improvement to the working man's cause and the newsprint industry and permit them to carry on in such a way as to enable them to maintain their employees on a more humane basis and better standard of living.

"It is neither the desire nor the intention of the Government of Ontario in the administration of its natural resources to encourage in any way the operators to bargain or make any adjustments that will be injurious to the industry or the workmen engaged therein."

What the Papers Say

Commenting on the crisis which has arisen, the *Montreal Star* says:

"A wall of silence descended on the various newsprint companies following the announcement by Premier Taschereau that he contemplated taking some measures that would save the newsprint industry from being again plunged into a price-cutting war that would bring it very near to ruin. Nobody would make any comment on the matter, all preferring to sit back and await developments, without any very clear indication as to what shape they would take.

"It was gathered by *The Star* that the St. Lawrence Paper Company had not yet actually signed any contract with the Scripps and Hearst organizations to supply them with paper at a price that is even below the present figure of $40 a ton delivered in New York and Chicago, but that they have practically committed themselves to a two-year contract. If this materialises it means that the pooling arrangement, which has been in effect for the past year, through which the companies with heavy orders passed on a portion of their manufacture to companies that were short on orders, stands little chance of being renewed.

"Actually the period of this agreement has expired, although no announcement has been made by the bigger companies as to what proportion of their tonnage they were prepared to hand over for the coming year. During the past 12 months something over 50,000 tons of newsprint has been distributed as a result of this pooling arrangement, and this has kept several of the mills going and maintained the price. There were hopes that when contracts were being renewed this month that the manufacturers of newsprint would all agree to demand an increase of something like $5 a ton in view of the increased cost of getting wood, and the general rise in prices affecting the industry.

"The action of the St. Lawrence Paper Company, however, which has a mill at Three Rivers with a 450 ton daily rate capacity, and which is controlled by the St. Lawrence Corporation, if it is carried through, will send this hope aglimmering, and the efforts of the Newsprint Export Manufacturers Association of Canada, which has been trying to stabilize the industry by means of allocation of tonnage, seem doomed to fail unless pressure is brought to bear on the Three Rivers mill owners to fall into line and maintain prices.

"There are three methods which are being considered to try and bring this about—first Provincial Government action as hinted by Premier Taschereau, second the imposition by the Federal Government of a license on exports, and third action by the United States code authority to restrict exports from Canadian manufacturers. There is a fourth method, having to do with financial matters, that may also have some influence on the situation, while if the bigger companies come out with an announcement of what they are prepared to do in the matter of allocation of tonnage for 1935 the day may be saved, and no effort be made by certain companies to go after their own business and become independent of the pooling arrangement.

"None of the officials of the St. Lawrence Paper Company would make any statement regarding the situation, nor would officers of the Newsprint Export Manufacturers Association have anything to say. At most of the head offices of the newsprint companies meetings were being held, with the probability of a general conference being called together."

The *Financial Times* of Montreal, says:

"Unless eleventh-hour intervention by Premier Taschereau has the effect of upsetting an agreement reported as being entered into (or completed) between one of the Canadian newsprint companies and important American publishing interests, or manufacturers again come together, the indications are that the Canadian pulp and paper industry is facing an even worse year, from the standpoint of profitable operations, than has been experienced in the recent highly unsatisfactory past.

"With improving business conditions in the United States, rising costs as the result of higher wages—reflecting NRA standards—and a discount on American funds received for exports to the United States, it had been hoped that it would be possible to make a justified increase of at least $5 a ton on contracts for the ensuing year. Conferences to that end have been conducted between representatives of the various companies forming the newsprint export group and it was considered that a basis of agreement had been reached satisfactory to all, by which business would be apportioned with respect to capacity and the desired advance in price thus insured. It was the opinion of those who have been in touch with the newsprint situation throughout the recent unsettled years that the various mill interests were closer together than at any previous period and that there was a real opportunity to put prices on a more stable basis.

"And then the bombshell. It was reported that one of the companies had gone out and negotiated for its output on the basis of this year's price. If this agreement goes through, those seeking to stabilize the market declare, it will probably mean that not only will the proposed advance be sacrificed in the struggle to get orders competitively but that even the current price may not be respected or maintained.

"There is grave danger that next year may not only see a continuation of the chaotic market conditions in newsprint which have prevailed in recent years, but that they may be aggravated. Therefore, in its effort to deal with the situation the government will have the support of the important business and financial interests and investors throughout the province and all Canada.

"Leading executives of the newsprint industry have for some time foreseen the possibility of government intervention in the situation. Agreements have been made among the various operators on the price situation, only to be broken immediately by one or more of the mills, special discounts and other concessions being granted to obtain tonnage while still ostensibly maintaining the fixed price. It was these conditions which brought about the threat of action by the U. S. treasury department, following the signing of the newsprint code under the NRA, against Canadian exporters who did not maintain the minimum price of $41 a ton (f.o.b. New York) agreed upon."

The *Financial Post*, of Toronto, in a despatch from Montreal, says:

"Uncertainty continues to exist as to what the price of newsprint will be on 1935 deliveries. This is a matter of importance to Canadian manufacturers as an increase will offset advanced production costs, while a continuation of the present price schedule will result in further operating losses for many companies. A downward adjustment of prices is not contemplated, but is a possibility that cannot be overlooked until the present situation has been straightened away.

"A number of the larger manufacturing companies had in mind an upward revision in newsprint prices for their 1935 marketing policy, but the action of St. Lawrence Paper Mills in making a commitment for next year's deliveries at an unknown price—but said not to be above the present level—has upset calculations.

"Over the past year there has been a gradual rise in the cost of materials and labor entering into the manufacturing of newsprint. Many of the major producers, both in Canada and the United States, have felt that an upward revision of prices was justified in order to offset these increasing costs.

"In the event that price schedules remain unchanged over the next twelve months, the situation does not hold out any particular promise of orderly marketing unless those companies short of newsprint tonnage are placed in a stronger position. In other words operating at the present level and with a continuation of $40 newsprint, several of the producers can only look forward to a continuation of operating deficits.

"While the price increase prospects for 1935 are rapidly fading out of the picture, interest is shown in the report submitted by David H. Tully, deputy administrator in charge of the N.R.A. newsprint code on the proposal for creation of a planning and adjustment board. The report was submitted to President Roosevelt two weeks ago.

"It is very problematical as to whether or not this pro-

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Boston Paper Market Conditions Improve

Business Reported Much Better In Fine Paper Section, With Inquiries More Numerous and Greater Activity—Coarse Wrapping Paper Picks Up Towards End of Week—Box Board In Fairly Satisfactory Request—Paper Stock Continues Quiet

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., October 15, 1934—The wholesale paper business here improved as a whole during last week, although some report the amount as about the same as the previous week. With some conditions are regarded as very encouraging, both in fine and kraft papers. Merchants, as a whole, are in a cheerful mood. At the local office of a manufacturer of fine paper, it was stated that business was much better, with dealers placing orders, "plenty of inquiry and lots of activity." In certain quarters, wrapping paper was reported as spotty but that during the latter part of the week an exceedingly good business was transacted. Orders for box coverings, particularly in specialties, swelled in volume, although the fall increase in box coverings has been very gradual. The demand for box board was fair, but is expected to become better later.

There was little, if any, improvement in paper stock as a whole, the market remaining quiet. Little change took place in the volume of mixed papers and old newspapers moving to the mills. Manufacturers, for the most part, have been buying from hand to mouth. No. 1 hard white shaving have declined to $2.00 @ $2.25 from $2.00 @ $2.35. In the last week or two, there has been a tendency to beat down the prices of bagging, particularly noticeable in gunny bagging. Buyers generally were out of the market. Gunny No. 1 domestic bagging has gone down to $1.15 to $1.20 from $1.90 @ $2.00. An exception the general lack of interest in paper stock is in scrap sisal, in which the market is very active. Somewhat conflicting statements are made in regard to the price dealers would pay for scrap sisal, although it is affirmed that they would be willing to pay $1.00 for it in quantities so that it can be reshipped without rebaling. It is said that it is not available in carload lots at the present time. Some quote figures of $1.00 @ $1.05 to the mills for scrap sisal, some $1.15 @ $1.25 and others $1.20 @ $1.25. The price range for some time has been $1.05 @ $1.10 to the mills. It is said that mills could not buy scrap sisal for shredding in carload lots for less than $1.25. Mixed strings have declined to .30 @ .37½ from .40.

Paper Houses Display Products

Several paper houses of Boston and paper manufacturers from various parts of the country had exhibits at the Exposition of the Direct Mail Advertising Association held in conjunction with its Annual Conference at the Hotel Statler, October 9-12. Paper firms exhibited in cooperation with manufacturers and had samples of their goods for general distribution.

The Andrews Paper Company displayed lines of the Howard Paper Company, Urbana, Ohio, including Howard Ledger, Maxwell Bond, Maxwell Offset and Maxwell Bonkote. H. A. Spooner, of the Howard Paper Company, here from Urbana, will confer with the sales staff of the Andrews Paper Company next week. Cooperating with the Gilbert Paper Company, of Menasha, Wis., the Andrews Company showed lines of that concern. Roger A. Fuller, the Eastern representative of the Gilbert, with home office in New York City, was in attendance. Summerfield Eney, Jr., very well known to the Boston printing craftsmen, was here from New York to assist the Andrews company in connection with the Champion coated papers, made by the Champion Coated Paper Company, Hamilton, Ohio. Mr. Eney is known as the champion "trouble shooter" for his company. Fred Herbolzheimer was in attendance for the Andrews Paper Company. Mr. Herbolzheimer welcomed two of his friends in the advertising business in New Bedford, William Rossi and G. W. Hirshson.

Carter, Rice & Co., Corp., showed papers of the Oxford Paper Company, Rumford, Me., with Oxford Book featured by a special display of the new Oxford Book Portfolio in the Sel-E-Vision display box. With the flashing of the light on and off, one found that "Your Troubles Disappear" on using the Oxford Book Portfolio. The company showed also Oxford's practical work-kit for buyers of paper. A "trick" mirror arrangement was a feature. John Wilson, advertising manager for Carter, Rice, who originated the idea of the display, was in charge of the booth.

The Old Colony Envelope Company, Westfield, Mass., displayed the Duo-Serve type envelope, which provides for enclosures under third or fourth class postage and also for a correspondence envelope, with letter postage. E. W. Hayes, of the Northern Envelope Company, Boston, was in attendance.

John Carter & Co., Inc., showed products of the International Paper Company, with offices in New York; Dill & Collins Company, Philadelphia; United States Envelope Company, Springfield, Mass., and the Eastern Manufacturing Company, Bangor and Lincoln, Me.

Tileston & Hollingsworth Company, manufacturers of paper for 130 years, demonstrated the production of paper in the old-fashioned way, hand-made, and showed specimens of their present-day products.

Von Olker-Snell Paper Company cooperated with the Eastern Manufacturing Company, with general sales offices in New York City who had a display showing Atlantic Bond and other Eastern lines. A special feature was a Color Dial, by which was made quickly possible a demonstration of three-color combinations, in shades of the Atlantic Cover. Von Olker-Snell are sending to the trade an elaborate Color Dial sample book, in which is a comprehensive variety of both paper colors and printing colors, arranged so that nearly 200 combinations of colored inks can be made to appear as if printed on each of the colors of Atlantic Cover. Paper colors and dial colors together will make thousands of three-color combinations.

The Arnold-Roberts Company featured products of the West Virginia Pulp and Paper Company and displayed many dummies and samples of other well known lines carried by this concern. Royden Loring, president and his sales force were in attendance.

John Carter & Co., Inc., showed specimens of products of the International Paper Company, Dill & Collins Company, United States Envelope Company and the Eastern Manufacturing Company.

Adirondack Bond was displayed by both the Cook-Vivian Company and John Carter & Co., Inc.

Storrs & Bement Company showed lines of the Strathmore Paper Company, S. D. Warren Company, Linweave, Beckett Paper Company, Thomas N. Fairbanks Hand-Made Paper, Worthy Paper Company, Reynolds Metal Foil and United States Envelope Company.

The panel of the Falulah Paper Company, showed several recent displays by firms employing the company's papers. The company also showed signs noting the five Boston distributors, Arnold-Roberts Company, Carter, Rice & Co., John Carter & Co., Inc., Cook-Vivian and Storrs & Bement.

Holyoke Card and Paper Company featured their 16-swatch portfolio showing all their cardboard lines and a composite cover paper sample folder, which included Kroydon, Ranger, Duratex and Argonaut. The exhibit was on a background of holly red and black Kroydon Cover. Rot box and fancy papers and Parchmetrx greeting-card paper were also part of the exhibit.

The Rising Paper Company, Housatonic, Mass., showed five of its lines for business use, comprising Fiscal Bond, Line Marque, Winsted Bond, Red Lion Text and Intralace.

McLaurin-Jones Company, Brookfield, Mass., showed its Pyroxlin Coated Papers, such as Waregold, Wareplatinum, and Wareluxor, lines distributed by Storrs & Bement.

The United States Envelope Company, Springfield, Mass., distributed at its display a tickler containing a list of standard sizes and style swatch, a folder of saleway sizes, a chart of 33 sizes of envelopes and a swatch of envelopes of the 10 standard booklet envelopes.

The Brown Company, Portland, Me., exhibited the raw product, Solka, and many items made from it, including bonds, ledgers, and book stock. At its panel was also told why Solka gives strength and permanence to papers.

P. H. Glatfelter Company, Spring Grove, Pa., featured the book papers and Monoplane Bond made by this concern. Portfolios demonstrating three grades of uncoated book paper, Monoplane, Spring Grove and Pennsylvania were available. C. H. Stallman, of the company, was in attendance. Monoplane Bond is distributed here by the Proctor Paper Company. C. H. Stallman was in attendance at the booth.

The exhibit of the Crocker-McElwain Company and the Chemical Paper Company, Holyoke, Mass., showed the new De Vinne Smooth for letter press and offset work. The booth was in charge of Edson S. Dunbar, advertising manager of the concern. Mr. Dunbar, who is president of the Papermakers Advertising Club, was elected a member of the Board of Governors of the D. M. A. A. and re-elected treasurer of the organization.

The Valley Paper Company, manufacturer of Valley, Pavco and Approved Onion Skin Papers, was represented by E. H. Fowler, assistant treasurer of the firm and Charles Vautrain, in charge of the company's advertising.

A feature of the exhibit of the Mason Box Company, Attleboro Falls, Mass., was an endless chain of mailing boxes of varying sizes. The display showed the sample mailer and described the service to customers in addressing and mailing boxes. The exhibit included beautiful bridge sets, cigarette boxes and other containers. Mason Mail Shipping Kits were given out. The booth was in charge of Ralph L. Harden, director of sales.

Manufacturers exhibiting included the Brown Company, Linton Bros., Dill & Collins, Inc., Holyoke Card & Paper Company, S. D. Warren Company, Tileston & Hollingsworth, Neenah Paper Company, Whiting Paper Company, Beveridge-Marfellum Company and The Marvellum Paper Company, Falulah Paper Company, Gilbert Paper Company, Duplex Envelope Company, Rising Paper Company, Howard Paper Company, American Writing Paper Company, Hampshire Paper Company, McLaurin Jones Company, Munising Paper Company, Japan Paper Company, Hammermill Paper Company, Old Colony Envelope Company, Northern Envelope Company, Strathmore Paper Company, United States Envelope Company, Boston Envelope Company and the Mason Box Company.

News of the Trade

The Kendall Paper Company has been organized to do a general business in coarse papers and twines by Lewis C. Bills at 55 Amherst street, Cambridge, Mass. Mr. Bills has been associated with the Andrews Paper Company for twenty-five years.

Percy D. Wells has just put in stock a complete line of Franconia Bond Envelopes.

A dividend of $2 a share on account of accumulations has been declared on the 8 per cent cumulative debentures stock of the Dennison Manufacturing Company, whose plant is at Framingham, Mass. It is payable November 1 to holders of record October 20. In the three preceding quarters dividends of $2 each on account of arrears were paid on the stock.

Reynolds Bros. Corporation, cordage, twine, yarns and webbing distributors, has been incorporated with a capital stock of 100 preferred and 100 common shares having no par value. Frederic L. Reynolds is president; Kenneth R. Reynolds, 397 Commonwealth avenue, Boston, treasurer, and Sherburne B. Clark is the third incorporator.

Charles F. Hubbs & Co., distributors of manufactured paper goods, with home office in New York City, have opened a distributing branch at 66 Broadway, Cambridge, Mass. E. A. Morse, Jr., is in charge.

Union Bag Makes Good Showing

Some reduction occurred this summer in the unit volume of paper bag sales as compared with a year ago, a trend which prevailed for all types of paper except newsprint. Despite this, however, Union Bag and Paper Company, a leading manufacturer have had net profit in the period almost equal to that which it earned in the three months ended September 30, 1933 says the *Wall Street Journal.*

The company does not make reports for quarterly periods, but in July initiated the policy of making reports each three months for the preceding 12 months. The first of these reports showed net profit for the 12 months ended June 30, 1934, of $1,041,149, equal to $6.95 a share on the 149,759 shares of stock the company's only capital obligation.

For the 12 months ended September 30 it appears likely that earnings will be somewhat under the above figures, but should be well above $6 a share.

For the calendar year 1934, Union Bag and Paper is certain to have the best earnings in a decade, and if the final quarter profits are at the same level as last year, the full year's results may top the $920,709 earned in 1923. They will not, however, approach the 1920 profit of $3,474,926.

Last year many customers bought goods in excess of their actual needs, in anticipation of price advances. It is reported that these stocks have been worked off, putting the market in better condition.

Demand for Paper Improves Slightly In Chicago

Fine Paper Market Exhibits Stronger Undertone, With Gain In Actual Size of Orders—Book and Cover Papers Continue Steady—Kraft Paper Section More Buoyant—Paper Specialties Arouse More Interest Than of Late—Paper Stock Situation Unchanged

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 15, 1934—Some excellent fall weather and general improvement in business sentiment combined during the past week to speed up the Chicago paper market and, though the improvement was by no means sensational, it was sufficient to put local paper executives in a much improved state of mind. Specific markets offered little or no change over the previous week. Fine papers reported a slight increase in demand and an encouraging increase in the actual size of the orders. The ground wood and newsprint markets were as yet uncertain as to whether or not the $41.00 a ton price was to stick but were feeling better even about the possibility of some such stabilization. Encouraging increases in newspaper advertising lineage were expected to assist in later development of this market. Books and covers were about unchanged except for slight betterment in demand. The kraft market, having just about its full of dullness, is beginning to believe that a long dormant market is pricking up its ears. Specialties also showed increased signs of life. It seems obvious, to merchants interviewed, that the moment business itself shows signs of real confidence and willingness to forge ahead, the local paper markets will be right out in step with the leaders. The waste market, locally, was little changed.

George Cobean Heads Regional Committee

R. S. Bull has resigned as chairman of the Middle States Regional Committee of the Code Authority of the industry because of the pressure of business. The report, coming shortly after the N.P.T.A. meeting, also added that George Cobean, of the Butler Paper Corporation, had taken the position which Mr. Bull had filled exceptionally well from last January till the date of his resignation. Mr. Cobean has been a well known figure in the paper trade for many years and has been with the Butler company for eight years, three of these in the capacity of general sales manager of the J. W. Butler Paper Company. His appointment has been very well received in this territory.

Eastern Salesmen Win Golf Cup

Inasmuch as names make news and because the event was the most successful of its kind yet held, a list of the prize winners at the final golf outing of the Salesmen's Association of the Paper Industry, held at the Flossmoor Country Club on September 27 is given herewith. The event attracted nearly 200 members and guests from all parts of the country—including a large delegation from the N.P.T.A. meetings. The prize winning list comes from R. R. Cook, of the International Paper Company, who has done such an exceptional job of seeing that these monthly golf outings have been made attractive to the salesmen. The *American Paper Merchant* prize, competed for by the Eastern and Western divisions of the association was won by a six man team of the Eastern division. The prize was accepted by W. L. Raymond, president of the association and representing the Eastern division in Chicago. Jack Burrus won the president's prize, put up annually by the president of the association. The SAPEYE golf trophy was won by Warren Moore for having the lowest net score during the five SAPEYE tournaments in the Western division. His net for the five was 388. H. Barge, with a net of 393, just nosed out R. C. Johnson, with 396, for the second prize.

Other winners were: blind bogey, P. H. Bridge; second blind bogey, R. White; third blind bogey, E. Kischel; blind bogey consolation, Dee Frisbee, R. Pierce, R. J. Weisner, George Bang, E. M. Beckwith and Paul Wesco; low gross, 36 holes, F. P. Tyrrell; low net, 36 holes, H. T. Johnson (handicap 1-17); low net, 36 holes (handicap 18-30) L. F. Porter; low putts, 36 holes, R. C. Johnson; low gross, morning, Ray Odman; low net, morning, Bob Whitelaw (1-17 handicap); low net, morning, H. Berge (handicap 18-30); low net, afternoon (handicap 1-17) R. Reay; low net afternoon (handicap 18-30), Jack Burrus; low putts, afternoon, Fred Huff; low gross, afternoon, E. C. Hilfert; second low net, afternoon (handicap, 1-17), W. S. Heberling; second low net, afternoon (handicap, 18-30), J. Wittrock; second low putts, W. H. Tilden; low score par 3 holes, P. C. Servass; low score par 5 holes, W. Bergstrom; low net, first nine, afternoon, H. Larkin; second low net, first nine, afternoon, G. Frelinger; low net, second nine, afternoon, W. H. Ross; second low net, second nine, afternoon, E. Jones; second low putts, Bob Pohl; low putts, first nine afternoon, G. J. Ticoulal; second low putts, first nine, afternoon, G. A. Miller; low putts, second nine, afternoon, Bill Raymond; second low putts, second nine, afternoon, L. C. Ferris; low net foursome, afternoon, R. Reay, W. H. Kenety, L. F. Porter, I. L. Gartland; low putt foursome, afternoon, J. H. Wantling, Herb Thwaite, A. Engel and Ray Odman.

News of the Trade

James H. Coy, Jr., whose resignation from the sales staff of the Eastern Manufacturing Company was announced last week, has accepted a position on the sales force of the Cherry River Paper Company, whose Chicago offices in the Conway Building are under the superintendence of Joe Heyer. Mr. Coy will call on Cherry River accounts in this territory, a position for which his past experience with the Eastern Manufacturing Company has made him very well fitted.

The Monday, October 8, meeting of the Mid West Division of the Salesmen's Association of the Paper Industry was largely devoted to a discussion of the recent rulings relative to the elimination of the commission on sales of kraft and sulphite to any one except bona fide mill representatives.

The new policy is reported to have been greeted with considerable favor by the large group of salesmen who met at the Palmer House.

The illustrated talk which shows scenes of the Hammermill Erie mills in action continues to be given good distribution in Chicago, one of the latest presentations being given by John G. Foster, of the Swigart Paper Company, to the Industrial Editors Club of Chicago. Mr. Foster talked on the "Romance of Paper," using the production views of the Hammermill plant to illustrate his remarks.

PAPER TRADE JOURNAL EDITION

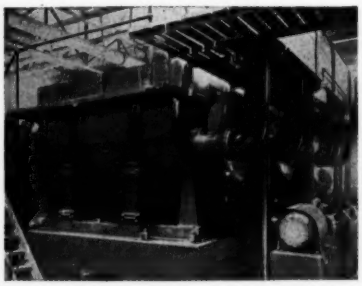
MACHINE ROOM NEWS

WHAT THE MILLS ARE DOING TO MAKE BETTER PAPER AND MORE OF IT — AT LOWER COST.

PUBLISHED BY • BIRD MACHINE COMPANY • SOUTH WALPOLE, MASS.

"SIMPLEST WAY TO IMPROVE QUALITY" say many mills

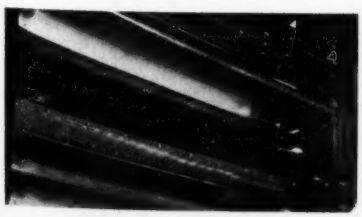
Mills making a wide variety of grades report that they have discovered no way of getting as great an improvement in paper quality for as little money as through the use of adequate screen capacity to permit screen plates of the right fineness.



A sulphite mill replacing two 2A Bird Screens using .016" plates with two 3A Bird Screens using .010" plates reduced dirt count 50%. A book mill likewise put in 3A Screens to reduce screen plates from .014" to .010" and also got a 50% reduction in dirt count.

If you're getting complaints or losing sales it will pay you to check over this matter of screen capacity with Bird engineers.

Mills Now Run Super-Calenders For Days Without A Break



In one case eight 8-roll stacks are now completely equipped, steel and fibre rolls, with Vickery Doctors. The stacks are run at unusually high speeds but there are no breaks, no sanding of rolls, rolls are changed very seldom and the steel rolls look as bright and flawless as new after many months of service.

Modern Machinery A Major Factor in Recovery

According to one business authority, "It is noteworthy that the individual enterprises that enjoy the greatest freedom from wage disputes, labor troubles and high costs are those firms which:

1. Are continuously modernizing processes and equipment, and,
2. Are continuously increasing the productivity per worker.

"It may be conservatively said that the more modern the equipment, the better equipped is any enterprise to withstand external influences without too great a decline in operations and earnings."

Slotted-Plate Pulp Screen Turns Out Big Volume of Highest Quality Stock

Enormous capacity, quality of pulp equal or superior to the best delivered by other types of screens, and complete flexibility are the advantages of the Bird Centrifugal Slotted-Plate Pulp Screens as determined from actual performance data.

Those interested in attaining these objectives and in lowest pulp screening cost per ton are advised to get in touch with Bird Machine Company for complete information.

ADV.

"HOW *I Used* To SUFFER"

Testifies Prominent Mill Superintendent

"For years I suffered something terrible from Spots before the Eyes.

"When I went to bed nights I'd get a vision of my paper unrolling and unrolling before my eyes, paper that I called No. 1 because we couldn't make any better. And there were spots, hundreds of them.

"Then I took some Bird Centrifiners and now I feel like a new man. No more spots. No more complaints. No more seconds and throwouts. I owe it all to Bird Centrifiners."

You, too, can rid yourself of Spots before the Eyes. Write today for information about the New Bird Centrifiner.

6180

Menasha Products Development Progresses

Large Addition to Waxing Plant of Carton Division of Marathon Paper Mills Co., Constructed and Interior Finished—While First Machinery Has Been Removed From Old Building, Complete Change-Over to New Building Will Require Several Months

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 15, 1934—Construction and interior finishing of the large addition to the waxing department of the Menasha Products Company, the carton division of the Marathon Paper Mills Company at Menasha, Wis., have been completed. The first of the machinery has been moved from the old department. The change over to the new building will be gradual, since moving will be done only over the week ends when the plant is shut down. It is estimated several months will be required for the transition so it will not be necessary to interrupt production.

Shattuck Discusses Industrial Relations

An interpretation of what is happening in labor circles and what is to come is set forth in a rather forceful and plain-spoken report issued by S. F. Shattuck, vice-president of the Kimberly-Clark Corporation, Neenah, Wis., as ruling elder of the committee on industrial relations of the Wisconsin Presbyterians. Mr. Shattuck is considered outstanding in industrial relations because of the widespread humanitarian application he has made in directing the personnel activities of the various mills of his company.

The report declares that "only a few stiff necked employers cling to the hope that the present industrial unrest will subside, and that we shall sink back into the old grooves where the boss may run his business as he sees fit. Progressive employers haven't thought in these terms and wouldn't if they could.

"Whether the transformation of the old order of industry to the new shall be peaceful or violent depends partly upon the vitality of the social principles of Christianity operating in the hearts of men at all levels of the industrial structure.

"We have witnessed the social upheavals in other nations, while at home we are having plenty of eruptions under Section 7-A of the NRA. This ill defined and embattled clause, which assures to the employee a definite legal status in his bargaining with the employer, injects a vigorous note into American industrial life.

"In spite of its defects and controversial interpretations, this clause in the law is symbolic of a new industrial order. There is little danger with that paragraph in the law of the land that we shall slide back into the 'Laissez faire' days of the twenties.

"The depression has destroyed the security and disjointed the habit of life of many millions. Until that dislocation occurs across a wide front, people haven't much appetite for radical changes, but it has happened and a major readjustment is on. Many of the old molds are either being cracked or broken.

"The determinants of the degree of peace that shall ensue during this transformation are the wisdom of the leadership within management and among labor, the strength of the radical elements in our society, the ability of our citizens to discriminate between movements motivated by selfishness and movements motivated by sound principle and the vitality of the social principles of Jesus."

Paper Chemistry Institute's Progress

Growth and progress of Lawrence Institute of Paper Chemistry at Appleton, Wis., were described by Dr. Harry Lewis, dean of the Institute, in an address last week before the Lions club of Appleton. He described its threefold program, the training of graduate students who had the proper qualifications for success in the paper chemistry field, the research facilities made available to industries, and the compilation of a complete world library in the field of pulp and paper manufacture. He mentioned also the service rendered in developing paper grades for enforcement of NRA codes. One mark of world fame, it is said, was the fact that the Institute was specifically quoted three times as often as any other research institute or organization in the world research report published for the paper industry at London.

News of the Industry

A meeting of the Northeastern Wisconsin Section of the American Chemical Society is to be held at the Lawrence Institute of Paper Chemistry at Appleton, Wis., Thursday, October 18. Prof. N. F. Hall, of the University of Wisconsin, is to speak on "Heavy Water." He will explain in detail this comparatively new discovery. Dr. S. F. Darling, of Lawrence College, is in charge of arrangements for the meeting.

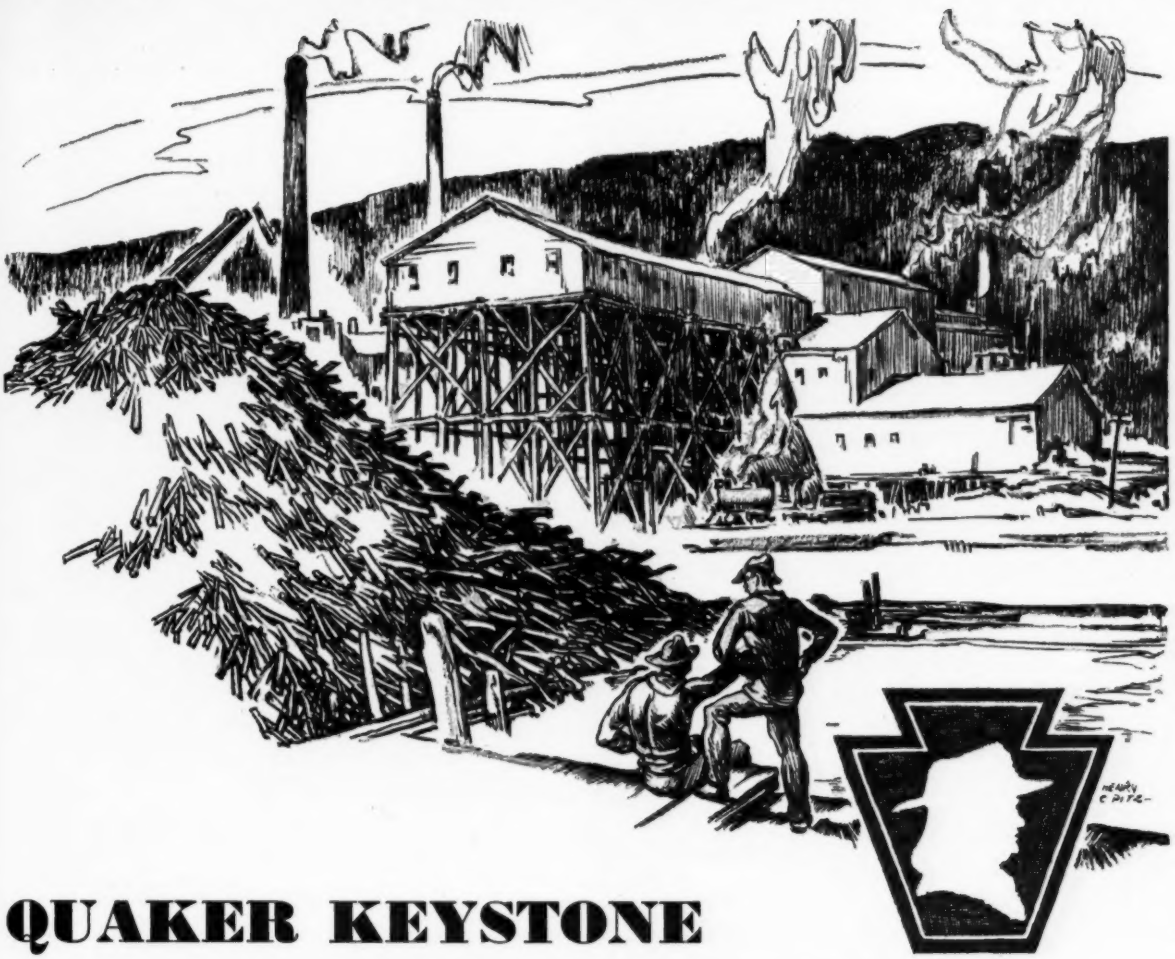
Employees of the Telulah mill of the Fox River Paper Company, Appleton, Wis., have organized a credit union through permission of the Wisconsin banking department. Articles of incorporation have been filed, and the name will be the Telulah Mill Credit Union. A savings and loan business will be conducted among the members.

Construction of the new power dam on the lower Fox river near the Interlake Pulp and Paper Company mill at Appleton, Wis., is nearing completion. The keyway for the remaining sections of spillway is completed, and the remaining concrete for the spillway is being poured. Concrete work will be completed this month and removal of the coffer dam will then start. New sluice gates have been installed, and piers for the old gates have been elevated.

A petition for ancillary administration of the estate of the late Lewis M. Alexander, who was president of the Nekoosa-Edwards Paper Company, has been filed in Wood county court at Wisconsin Rapids, Wis. The will originally was admitted for probate in Florida, where Mr. Alexander maintained his legal residence. The estate, except for a few small bequests, is left to his widow. It lists real estate to the approximate value of $18,000, and personal property of about $150,000.00.

E. H. Neese, president of the Beloit Iron Works, Beloit, Wis., has been appointed to the trade practice complaints committee of the paper machinery building industry, according to announcement from NRA headquarters at Washington, D. C.

Mr. and Mrs. James Holbrook Kimberly, who were married last week at Neenah, Wis., will make their home upon return from their honeymoon trip at Niagara Falls, N. Y. Mr. Kimberly is associated with the Kimberly-Clark Company's mill in that city. He is a son of Mr. and Mrs. J. C. Kimberly, of Neenah, and a grandson of the late John Alfred Kimberly, one of the founders of Kimberly-Clark Company. Mrs. Kimberly formerly was Miss Ruth Bishop, daughter of Mr. and Mrs. Frank W. Bishop of Hinsdale, Ill.



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The dependable quality of this product is the result of more than eighty-three years' experience in making chemicals for industry.

Furthermore, due to the convenient location of our plants, quick deliveries of Chlorine can be made to all parts of the country.

We will be glad to furnish highly specialized technical advice, upon request, without cost.

CHEMICALS
for the
PAPER INDUSTRY

CHLORINE CAUSTIC SODA
SODIUM ALUMINATE
PENCHLOR
(Super-Test Calcium Hypochlorite)
PENCHLOR ACID-PROOF CEMENT
ALUM
ANHYDROUS AMMONIA
BLEACHING POWDER
(*Standard Strength*)

Est. 1850

TRADE MARK

PENNSYLVANIA SALT MFG. CO.

EXECUTIVE OFFICES, WIDENER BLDG., PHILADELPHIA, PA.
Branch Sales Offices: New York—Chicago—St. Louis—Pittsburgh—Tacoma—Wyandotte

Philadelphia Paper Market Outlook Brighter

Gradual Improvement Anticipated Over Next Three Months—Demand for Various Standard Grades of Fine Paper Better Than of Late—Direct Mail Advertising Campaigns Launched —Paper Stock Section Practically Marking Time

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 15, 1934—The outlook in the paper trade industry here is for a gradual improvement in business over the next three months. There are plenty of uncertainties—political, economic and financial—and these are tending to restrict business improvement without actually choking it off entirely. However, it is evident on all sides that business sentiment is very much improved this week by the very encouraging statement of President Roosevelt that the Administration was not abandoning its program of lifting prices. And confidence was further renewed when Donald Richberg, key man in the reorganization of the NRA made it clear that stability rather than widespread price slashing was the objective. The fine paper market is experiencing a seasonal betterment, and is seemingly very enthusiastic over what is to come, particularly with the launching of direct mail advertising campaigns which are being projected on a very large scale. The paper stock business is moving along on an even keel with hardly a reportable change from the conditions which have maintained for some months past.

Direct Mail Convention Program

In line with these campaigns, The Philadelphia Chapter of the Direct Mail Advertising Association, in conjunction with the Poor Richard Club, will hold its annual direct mail convention on October 24, 25 and 26 at the Bellevue-Stratford Hotel.

The National Convention will be held in Boston the middle of October from which will be launched to tour the country an elaborate display and panels comprising 2500 square feet of printed and processed illustrations of direct mail selling. Proceeding from Boston to New York, it will be exhibited in Philadelphia on the above dates. Thus, Philadelphia will be the third city on a nation-wide tour to have the opportunity of viewing this outstanding exhibit, which means so much to the paper industry and allied trades.

In addition to this exhibit an extremely interesting and valuable program has been arranged by the General Chairman, Dr. Howard T. Hovde, of the Merchandising Department of the University of Pennsylvania, in conjunction with Henry Hoke, the national executive secretary of the D. M. A. A.

October 24 will be primarily devoted to producers and suppliers of direct mail literature with a luncheon featuring the middle of the day. This will be addressed by Frank T. Denman, Kenyon & Eckhardt, Inc., New York, on—"What Are the Opportunities of the Printing Salesman Today."

Luncheon will be held Thursday noon in the Ballroom of the Bellevue-Stratford Hotel, in conjunction with the regular Thursday Luncheon Meeting of The Poor Richard Club.

The Direct Mail and Graphic Arts Exhibit itself is the largest and most modern collection of practical mailing pieces ever assembled. There are examples of every possible form and style; examples of most of the processes and methods used today in this work. Thousands of business organizations, representing every type of business, have contributed successful specimens to this collection.

All of the pieces shown have been classified and arranged according to their definite functional use. In one section there are forty-nine separate panels, each panel devoted to one phase of direct mail. In another section there are portfolios containing the "Fifty Direct Mail Leaders."

It promises to be one of the most outstanding exhibits ever shown in Philadelphia. Its importance becomes even more accentuated by the fact that paper, printing and publishing are among the leading industries in Philadelphia, which possesses many of the finest establishments in the country. Much of the promotional material of the world's outstanding manufacturers is being prepared by highly specialized advertising men in the city.

The officials in charge of the Convention are: Chairman, Dr. Howard T. Hovde, University of Pennsylvania; Vice chairman, George Ward, President D. L. Ward Paper Company; Treasurer, Howard Ford, Salesmanager Hoedt Studios, Inc.; Publicity and Attendance, John F. Arndt, President John F. Arndt & Co., Inc.; Local Exhibit Space, W. R. Kortkamp, Advertising Manager Dill & Collins, Inc.; General Exhibits, Hubert Foster, A. M. Collins Manufacturing Company; Suppliers Committee, Norbert A. Considine, President Paper House of Pennsylvania; Users Committee, Rowe Stewart, Stewart-Jordan Company; and Producers Committee, M. O. Lokensgard, Salesmanager Franklin Printing Company.

News of the Trade

The guest speaker at the regular monthly luncheon meeting of the Philadelphia Paper and Cordage Association, Inc., which will be held on the Roof Gardens of the Adelphia Hotel on Friday, October 19, is I. D. Gindhart, Jr., superintendent of the Commercial Department of the Keystone Telephone Company, who will speak on a subject of timely interest to all those in the paper trade. The Moulten Paper Company, 25 South 6th street, is the latest addition to membership in this association, and will be represented by Frank Donohue.

The meeting of the Board of Governors of the Philadelphia Paper Trade Association was held on Thursday, October 11, with President T. H. B. Smythe presiding.

The annual meeting of the Philadelphia Paper Trade Association is scheduled to be held on the second Wednesday in January, 1935.

T. H. B. Smythe, president of the Paper Trade Association of Philadelphia, accompanied by Norbert A. Considine, in charge of the Fine Division, were in attendance at the meeting of the Regional Committee, held in New York on October 10.

Swedish Newsprint Production Less

WASHINGTON, D. C., October 17, 1934—Newsprint production in Sweden during July totalled 22,745 metric tons, a decrease of 334 tons compared with the July, 1933 output of 23,079 tons, according to Acting Commercial Attache Osborne S. Watson, Stockholm. Production for the first seven months of 1934 came to 141,300 tons as against 137,436 tons during the corresponding period in 1933. Newsprint exports from Sweden during July amounted to 14,962 tons, bringing the total for the seven months period up to 108,935 tons, as against 102,769 tons during the first seven months of last year.

PAPER INDUSTRY TO MAINTAIN PRESENT WAGE SCALE

(Continued from page 17)

should or can exert a strong leadership in industry management I shall not attempt to discuss. We all know, however, that the Paper Industry Authority is being criticised. It is criticised for its expenditures in the general cooperative activities. Criticism has not in all cases been of a constructve nature. In fact there have been criticisms as to the impartiality of the members of the Paper Industry Authority. The P. I. A. wishes to bring these criticisms out in the open. In the discussion that follows I sincerely hope that you will be frank; I do hope that your criticisms will extend beyond mere destructive objection; that you may suggest remedial measures upon which a firmer, more complete industry structure for self-government may be built.

Results of Code Regulation

In order that we may have before us a picture of what has happened, I want to summarize briefly our achievements in cooperative effort under the NRA. I also want to comment upon the relationship between the NRA and industry and I want to suggest that we consider today what we, as an industry, shall ask from the Congress of the United States in the way of industrial legislation to carry on after the termination of the NRA and, further, that we begin to plan a better, more effective program of associated work.

The benefits of our operation under the General Code are of two types; one, intangible benefits that cannot be measured statistically; the other, benefits and contributions of this industry to the general public welfare, that can be measured by statistical means. First I should like to present the tangible benefits.

Tangible Benefits

The tangible benefits of the industry hinge upon the consumption of our products. Our nearest approach to measurement of consumption is our production records. Prior to the enactment of the National Recovery Act the production levels of the industry had dropped a little more than 30% from the peak of 1929. From month to month, up to May, 1933, our production ratios varied from approximately 55 to 70 per cent, tending to gravitate toward the lower level.

Then the NRA was enacted. Its apparently generous competitive provisions, based upon the assumption that purchasing power could not be raised without control of competition, led to a bullish movement in the commodity market. Purchasers, convinced that prices were going up, eagerly sought to cover their requirements. A moderate sized boom resulted which carried our production levels from the 50's to above 30 per cent of capacity by August, 1933. Expectation of immediate inflation, retrenchment by the NRA, the cumulative effect of uncertainty as to political action, began to cripple business; the purchasing wave died rapidly. By January our production level had receded to depression levels. The seasonal up-trend in February, March and April was hardly noticeable. Production ratios fell off again in May, reaching levels of slightly more than 50%, which were maintained during the months of June, July and August, a longer period of operation at such low ratios than had existed since the summer months of 1921.

Wages and Employment

Obviously the low production rate has influenced employment and payrolls. The average wage rates paid in the paper industry today are approximately the same as those paid in 1929. The paper industry has in this respect contributed to the rehabilitation of the national welfare.

The reduction in working hours from an unlimited work week prior to the Code, to the 40-hour requirement of the Code, is reflected in periodic earnings. The shrinkage in production has had a marked influence upon payrolls. In spite of these facts, however, the industry's payrolls are today but 15 per cent less than they were in 1929.

The forty hour week resulted directly in an increase of employment to about 142,000 in the primary manufacturing groups considered as a whole, which is 10 per cent in excess of the 1929 figure. This in an industry of the character of the paper industry is a significant achievement, especially under conditions of constantly declining production.

It is obvious from these facts that earnings of the individual worker have decreased. This is true in all departments of the mill. It is due to the low operating levels. At an operating ratio of approximately 75 per cent the average wage of the individual worker under present hourly wage rates would exceed comparable averages in the pre-code days.

I cite these facts that we may have before us a summary of the contribution of this industry to the Administration's program. It is a record that we may well be proud of, and we should be happy to have had a part in bringing about this revolution, for it is a revolution in the make-up of our industry.

How has the industry benefited in this program? This is difficult to discuss because here again the abnormally low production levels have obscured the facts; but it is clear that the open price filing system provided for in our Code has been effective as a measure for controlling unfair competitive practices and for eliminating the type of destructive competition that brought the industry to the verge of insolvency in 1933. A study of the average selling prices of our products today shows that in many grades we have gone back to 1931 price levels. The drastic price cuts of July and August, 1932, which were followed by secondary cuts that resulted in a constant reduction in the average selling price of paper up to May of 1933, have been wiped out.

The open price filing system has introduced many new elements into our competitive structure. As a matter of fact, it has been my experience that, under the open price filing system, competition is even more intense than it was prior to the Code; but with this difference—we now know what the competition is. Twenty-two of our 24 Divisions have come through without a serious price break. In some there have been gradual decreases. In others there has been a stabilizing or a firming tendency.

It is significant to speak of the two exceptions—I refer to the Tissue and Napkin Divisions. In these Divisions price filing was initiated but evidently the manufacturers were not ready for it. It seems impossible to conceive that anybody was willing to re-engage in the cut-throat competition that existed in 1933, but that has happened in these two Divisions. It is not a fault of the open price system; for that has worked admirably in the other Divisions. It is on the other hand evidence of a lack not only of cooperative spirit, but also a lack of group wisdom.

It is well that prices have held, for the manufacturing costs have mounted constantly. We have had increases in the labor cost of manufacturing paper, which resulted from our own wage rate arrangements, ranging from 25

to more than 100 per cent and averaging for the industry as a whole approximately 60 per cent over pre-code days. The increases in wages in industries that supply the paper industry with materials have had a cumulative effect. The prices of fuel under the dictatorship of the government have been raised more than proportionately. Our prices have barely kept abreast of costs. We are not yet making a profit; but we have the satisfaction of knowing that as an industry we have contributed our full share in the supreme effort to lift the country from the depression abyss.

Intangible Benefits

I believe the measure of benefit of code operation lies chiefly in the intangible benefits. To propose a code and to provide for its subsequent administration, the unorganized sections of the industry were forced to organize. As a result we have today a complete industry organization which heads up into a reorganized American Paper and Pulp Association. To my mind this is the most important step that our industry has ever taken.

We have not been able to obtain NRA approval of the trade customs and trade practices; we still await constructive action as to our grading program; but in spite of this we have secured in most of our Divisions a greater adherence to trade customs than ever before. And for the first time industry opinion has been consolidated to such an extent that we have been able to initiate a scientifically sound and wholly desirable grading program.

In our organization we now have means to combat the competitive practices that led to the reduction of wages, the discharge of employees and the lack of dividends to our stockholders. We have a basis upon which we may build a customer's protection and from which we may again pick up the trend of expansion that has characterized this industry from its inception.

Above all, the frequent meeting of competititors has bred an understanding and consciousness of the industry's welfare that never existed before. Without curbing to any great extent the initiative of our more progressive companies, we have largely directed that initiative into constructive rather than destructive avenues. These, the accomplishments of organized effort, constitute a powerful forward thrust in our approach to self-government.

Future Prospects

We now pause to consider the future. What does it have in store?

A first consideration is the NRA itself. We are fortunate today in having Mr. George H. Mead with us, who, as Chairman of the Industrial Advisory Board, is in a position to interpret the trends within the NRA and the drift of policies relating to it. Mr. Mead will discuss the developments of the new NRA.

Without special knowledge of developments or trends I want to express my opinion based upon my interpretation of recent statements of the President and others. In spite of the fact that the NRA may not have been the complete panacea we may have envisioned, it has created a large measure of self-government. The NRA has encouraged the associated activities and the organized effort for which industry has clamored for over a quarter of a century. Under its privileges, industry has responded by increasing employment, wages and payrolls. Industry has not yet completed its job, to be sure, but it has made a significant beginning.

Now, then, is it reasonable to expect complete abolishment of a program that has for the first time in years started the machinery of industry moving at a quicker rate? I do not believe so. Furthermore, I believe that the Act itself should be continued with little or no modification for another limited period after its expiration on June 16, 1935. There is no widespread quarrel over the Act; I am satisfied with it. Moreover, I fear what may happen if it is introduced for debate on the floor of the Congress. We know now what the Act is and we are beginning to know what we may do under it. I do not want to gamble on what the Congress might do with it.

The crux of industrial salvation is what industry does with the privileges granted it by the Act. In so far as the paper and pulp industry is concerned, the responsibility rests with those of us who are meeting here today to determine our future course.

The condition of the industry and its ability to use its mobilized strength for recovery is a second vital consideration. In spite of constant leaching of our financial resources, I see the development of a new power in our industry. Fundamentally, conditions are sound. Our price structure is reasonable, our competition is getting cleaner, and our chances of taking advantage of better market conditions are excellent.

Consumer and converter stocks are lower today than ever before in my experience except during the war period. Consumption has been exceeding production for several months; we have at last used up the stocks accumulated in 1933. The pulp market is firm and there is now something more than a hope that the heavy hand of internal strife and consumer domination is losing its throttling grip on the newsprint industry. We are on the verge of better volume; in fact, the over-all production ratios of the last two weeks indicate that business is beginning to improve.

Expanding Use of Paper

Once more the industry is manifesting an interest in expanding and increasing the use of paper. To me this is an excellent sign, for it denotes a healthy shift of emphasis from purchasing volume by price cuts or by unwarranted grade improvement to creating new volume. This manifests a return of the spirit that lifted our industry from insignificance to a rating among the ten leading American industries.

Our greatest weakness lies in our financial position. Too many companies have been depleting their reserves too long. Profit in the industry as a whole is a forgotten phenomenon. Companies are forced by financial stringency to sacrifice materials and labor for cash. This condition has created price problems in some divisions, which have been difficult to handle.

Another weakness which is not confined to the paper and pulp industry is a tendency toward hysteria. Rumors are rife, running their usual devious courses. One may hear from responsible business men statements that approach the ridiculous. In our own industry we may hear that our Code has been repudiated; that the industry is about to be denied its price filing system; that higher wage rates are to be imposed; that the NRA will undertake no compliance. In fact, the rumor that the NRA is on the verge of complete abandonment is common. It is actually reported that the P. I. A. is not run for the benefit of the entire industry. There is no truth in such rumors. Yet they indicate a state of mind that must be reckoned with. I hope that we may leave this meeting with a greater measure of certainty as to the actual facts in the case.

I have attempted to sketch briefly some of the background of our industry and of the conditions surrounding it. My purpose in doing so is to have before us a summation of results as a common basis for our discussion.

ALKALI FASTNESS ASSURED

ON INDIA TINTS AND BUFFS

...for those who use

PONTAMINE YELLOW SXG *and*
REG. U. S. PAT. OFF.

PONTAMINE FAST ORANGE WS
REG. U. S. PAT. OFF.

YOU NEED not worry about alkali when you use either of these du Pont dyestuffs on your India Tints and Buffs. Fastness to alkali is assured in advance. And you know how important that is, especially on Buff Ledgers.

PONTAMINE Yellow SXG and PONTAMINE Fast Orange WS produce all shades of India Tints and Buffs. Sheets will show very little two-sidedness. They also possess good fastness to light.

Testing these two dyes will prove the advisability of adding them to your line. Send for testing samples today.

DU PONT DYESTUFFS
REG. U.S. PAT. OFF.

E. I. du Pont de Nemours & Co., Inc.
Organic Chemicals Department
Dyestuffs Division,
Wilmington, Del.

We are today pausing to evaluate our experience and upon the results to determine a course of organized activity that will give us the greatest possible share in the industry's and the Nation's recovery under the privileges that are granted by the N.I.R.A. and by our Code.

In the name of the Paper Industry Authority, I ask your frank opinion of its activities. Make your criticisms specific and your suggestions explicit.

Splendid Constructive Work

We started this code work from scratch. We assembled ideas of the industry—we made up our blue prints—we constructed and erected our machinery—but when it began to operate imperfections developed which we have endeavored to overcome. In my opinion, with the cooperation of our Divisions, it can well be said that a splendid piece of constructive work has been done, and which deserves the commendation of the entire industry and which augurs well for the future voluntary cooperation that may be even more necessary after the termination of the National Industrial Recovery Act, than it has been during its existence.

George H. Mead Discusses NRA

George H. Mead, president of the Mead Corporation, and member of the Industrial Advisory Board in Washington, D. C., gave the conclusions he had arrived at after the last strenuous six months in the Capital. He described the make-up of the industrial, consumer and labor advisory boards and stated that these boards had been materially enlarged because their duties had far exceeded anticipations.

Mr. Mead emphasized the importance of industry in general recognizing the honest efforts being made to support the President. Incidentally, he declared that as long ago as 1917 he had discussed with former President Theodore Roosevelt the necessity of proceeding along similar lines to the National Industrial Recovery Act.

Referring to the labor siutation, the speaker expressed the view that Clause 7 A represented the best that could be done under the circumstance. He declared that the NRA may be altered, or may be continued as it is, but that it would definitely be continued along some form.

Praises General Johnson

Mr. Mead stated that it was to the everlasting credit of General Hugh S. Johnson that the NRA movement had been kept 100 per cent free of political influence. He said that General Johnson had done a magnificient job and, despite mistakes, would always receive credit for his colossal work.

He described the new board as fine a body of men as could be secured and expressed the view that industry should support it to the limit. In conclusion, Mr. Mead praised the work of W. W. Pickard, former Deputy Administrator and now Co-Ordinator for the Paper and Pulp Industries. He considered Mr. Pickard's record outstanding, in every way.

Other interesting addresses were given by F. J. Sensenbrenner, president of the Kimberly-Clark Corporation; W. W. Pickard, who gave a review of his work as coordinator; Ernst Mahler, of the Kimberly-Clark Corporation, who reported on the Grading Program, and others.

Resolutions Approved

The following resolutions were passed at the Open Meeting and at the Board of Governors Meeting, which was held later in the evening:

WHEREAS the industry has submitted, under date of May 16, 1934, a Revised Code for the Paper and Pulp Industry, which the NRA has notified us it will not approve, and in turn the NRA has submitted to us certain alternatives under date of September 21, 1934;

RESOLVED, that it is the sense of this meeting that the proposed amendments of September 21, 1934 to the existing code submitted by the NRA cannot be approved and that the code in its present form, with the exception of the amendment in regard to financing proposed by the industry, be reaffirmed at this meeting.

WHEREAS an approval of an amendment of the paper code increasing the minimum wage rate without the concurrent approval of other amendments necessary to stabilize the marketing structure of the paper industry will impose great hardship on many members of the industry, particularly the smaller units,

NOW THEREEORE, IT IS RESOLVED, that the Paper Industry Authority be requested to make representations to this effect to the NRA and to urge that no increase can be made in code wage rates until the industry is able to carry the added burden, and

RESOLVED FURTHER, that the Paper Industry Authority be requested to appoint a committee to confer with the NRA on this matter and that the smaller mills in the industry be represented on such committee.

MODERATE INCREASE IMPERATIVE

(*Continued from page* 19)

posed board will ever come into being. If sanctioned by the N.R.A. then the manufacturers would have a fair hope for a price increase next year, but it now appears that both the American and Canadian manufacturers will have little success in securing a better price on next year's deliveries."

Anglo-Canadian Mills Raise Wages

The Anglo-Canadian Pulp and Paper Mills, Ltd., of Quebec, have announced a further average increase of 5 per cent. in wages to its staff and mill workers, the increase to be effective as from September 30. This is the second increase this year.

In announcing the new increase, which is made voluntarily by the company, Anglo-Canadian officials say the augmented wage is set out as follows:

All staff employees receive a straight five per cent. increase; a minimum wage of $3 per day for an eight-hour day is established for all inside mill workers; men receiving 50 cents per hour and under, receive a four per cent. increase; men receiving 51 cents and 60 cents per hour are given a five per cent. increase; men receiving over 60 cents per hour, excepting paper machine workers, receive a six per cent. increase.

The new increase, as was the case in the rise last May, is made on a graduated percentage scale.

The paper machine workers, officials say, are now being paid the 1932 scale of wages.

Kieckhefer Co. Expands

The Kieckhefer Container Company, 1667 Tchoupitoulas street, New Orleans, has leased the building occupied by the Crescent Bed Company, Inc., at 600 Broad street, more than doubling its space. The Kieckhefer concern makes corrugated and solid fiber boxes, and in moving to larger quarters will add new machinery to include additional processes. The company serves a territory which includes Louisiana, Mississippi, Alabama, Oklahoma, and Texas.

Obituary

Malvin C. Burrell

PIQUA, Ohio, October 15, 1934—One of Piqua's most prominent citizens and industrial leaders, Malvin C. Burrell, vice-president and general manager of the Orr Felt and Blanket company, died at his home 711 North Wayne street last week after a prolonged illness.

Mr. Burrell contracted pneumonia last December and for days his life hung in the balance. So weakening was the ravages of the illness that he never again fully recovered his strength despite the use of every known treatment and all the skill of medical science. He had been unable to leave his home because of illness since early in May of this year following a course of treatment at White Sulphur Springs, West Virginia. His condition became critical again two weeks ago and his strength failed steadily.

Malvin C. Burrell had been associated with the Orr Felt and Blanket Company here and its predecessor, the F. Gray Company, practically his entire business life, or for a period of forty years. He formerly was a salesman for the felt and blanket manufacturing firm while living at Utica, N. Y., his former home and also that of his wife.

He and Mrs. Burrell came to Piqua in 1923 to live and a short time later Mr. Burrell was made vice president and general manager of the industry, a position he held until the time of his death.

As head of one of Piqua's largest industries Mr. Burrell was active in many civic enterprises and institutions. He served as a member of the Piqua Memorial Hospital Board of Trustees and also as president of that board for a period. In addition he was a member of the Piqua, Dayton and Springfield Country Clubs, The Piqua Rotary Club, of which he was a past president, The National Republican Club of New York City and the Fort Schuyler Club of Utica. He attended the First Presbyterian Church here. He was married at Utica in 1912 to Miss Mary Avery, member of a prominent family of that city.

Surviving are his widow, Mrs. Mary Burrell and one brother, Seymour Burrell, of Montclair, N. J.

Charles H. Chamberlin

Charles H. Chamberlin, advertising manager of the Byron Weston Company, Dalton, Mass., died on October 9 at Briarcliff Manor, N. Y., where he had gone for treatment for an illness brought on by an automobile accident on August 16.

He was born in Dalton, Mass., December 8, 1875, the son of Ansel and Florence Barker Chamberlin. He was educated in the Dalton public schools and at Phillips Academy, Andover, Mass.

His first business connection was with the New York Telephone Company, later joining the organization of the Byron Weston Company, of which he was advertising manager at the time of his death.

Mr. Chamberlin came from a long line of paper manufacturers. His grandfather built the Defiance Mill about 1825, which was bought by Byron Weston in 1863, and it is still part of the Weston group.

In 1916 Mr. Chamberlin married Miss Mildred Curtis Davis of Dalton. They lived in the home built by his family and occupied by it for five generations.

He was a past master of Unity Lodge of Masons and of Berkshire Chapter Eastern Star and was a leader in civic affairs of Dalton.

He leaves a widow and sister, Miss Sally Chamberlin, of New York.

Morgan Levi

TOLEDO, Ohio, October 15, 1934—Morgan Levi, aged 61, president and general manager of the Commerce Paper Company and more than fifty years a resident of Toledo, died last week in his home at 2641 Parkwood avenue after an illness of eight months.

Mr. Levi was associated with the Chicago Paper Company for 26 years and for the last eighteen years was head of the local company, a branch of the Chicago company, and since 1932 was sole owner of the company, located on St. Clair street.

He was a prominent Mason, being a member of Rubicon Lodge, No. 237; Fort Meigs Chapter, No. 29; Toledo Council, No. 33; Toledo Commandary, No. 7; Scottish Rite, Zenobia Shrine, Yondota Chapter, No. 317, O. E. S., and National Union. For the last eighteen years he had been secretary and treasurer of the Shrine Patrol. He was a member of St. Mark's Episcopal Church.

Mr. Levi was married August 15, 1900, to Blanche Stoker. A daughter died November 18, 1933. Besides his wife he is survived by two sisters, Mrs. Edward Myers, Youngstown, Ohio, Mrs. Rose Frankfurt, Toledo.

Robert Kaimer

ELIZABETH N. J., October 12, 1934—Robert Kaimer of 979 Kipling Road, this city, vice president and secretary of the Miller-Kaimer Paper Company, died last night after a short illness while on a visit at the home of his sister, Mrs. John M. Rogers, in Bloomingdale, N. Y.

Mr. Kaimer was born here forty-seven years ago, a son of the late Charles R. and Emma Bauermann Kaimer. He had been vice president and secretary of the paper company since its founding in 1914. During the World War he was a sergeant at Camp Sevier, Greenville, S. C. He was a Mason, an Elk and a member of the Junior Order of United American Mechanics.

Surviving are a widow, Mrs. Ruth Strum Kaimer; a brother, Julius C. Kaimer, of Rahway, and two sisters, Mrs. Rogers and Mrs. Floyd Wade of Roselle Park.

W. D. McBride

JACKSON, Miss., October 10, 1934—W. D. McBride, associate and representative of the Jackson Paper Company, of this city, passed away suddenly on Monday, October 8, at his home in Meridian, Miss.

Mr. McBride had been with the Jackson Paper Company for more than thirteen years, representing the organization in a section of the State of Mississippi. He had been in the paper business a quarter of a century.

Combustion's New Sales Set-up in South

With a view to providing better coverage and more complete service in the South, Combustion Engineering Company, Inc., has divided this territory into two districts. The Southeastern district will extend from Richmond to Florida, with headquarters at Charlotte, N. C., which is more central to the territory served than was Atlanta. This district will be in charge of T. C. Heyward as District Manager. Associated with Mr. Heyward are C. A. Weston and Arthur B. LeClere, all well known in engineering circles in the South.

The Southwestern district will extend south of the Kentucky-Tennessee border and west of Atlanta to the Mississippi River. It will be under the Chattanooga District Office with L. C. Haller as District Manager. B. W. Webb, now District Engineer at Cincinnati, will shortly join the sales organization at Chattanooga.

E. L. Shuff, formerly in charge of the Atlanta office, has been made district manager in Cincinnati.

File Objections to Dr. Campbell's Will

[FROM OUR REGULAR CORRESPONDENT]

DEXTER, N. Y., October 15, 1934—Objections to the probate of the will of the late Dr. James E. Campbell, until several months ago head of the Dexter Sulphite Pulp and Paper Company, were filed this week with county surrogate by the widow. In the objections attorneys contended that it was not his last will, that it was not duly executed, that he was not of sound mind at the time he made it and that undue influence was used. The will was executed about twenty years ago and in it Dr. Campbell made no provisions for his wife declaring that it was not his duty because of her attitude toward him. It is said that his estate is now not worth more than $40,000 and that his mother, Mrs. E. W. Campbell, of New York City, has filed a claim of $70,191.50 which she alleged the son owed her. Note obligations and interest form the basis for this claim which extended from 1914 to 1932.

The will was not offered for probate for some time after the death of Mr. Campbell but was finally filed with the surrogate. Mrs. Campbell would not offer it or anyone else and the result was that after sixty days Judge Grant ordered the county treasurer to propound it. The document showed personal property in excess of $5,000 and realty in excess of a similar sum. The will is complex and a daughter who died many years ago was among the principal beneficiaries, rendering a large portion of the will ineffective. A slight bequest was also allowed the late Dr. Clarence W. Campbell, a brother, but this was also void as he died before the deceased manufacturer.

As a result it is contended that the only effective provision is a bequest calling for a $2,000 annual income to the mother of the deceased and a life use of the balance of the estate with the stipulation that upon her death the estate will be bequeathed to a nephew, John M. Campbell, of the Province of Ontario, Canada. In the event of his death the estate would go to Yale University, of which the deceased was a graduate. It is expected that Judge Grant will decide for a jury hearing before the supreme court in order to test the validity of the will.

More Inquiries in Indianapolis

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., October 15, 1934—Trade volume in this area seemed about the same as the week before, but there appears to be more inquiries received. If a reasonable percentage of these inquiries, distributed pretty equally among the standard grades of paper, materialize there will be a good volume during the next month. Perhaps the biggest volume now is going to the offset printers and lithographers. An enormous number of labels now are going to the canning trade. One local lithographing company, perhaps the largest in the state, reports an unprecendented demand for can labels. Indiana was not affected by the drought as were some other states and the canners are canning everything possible against a possible demand from other states later in the winter.

The container demand continues good and manufacturers say the only recession they have had has come from the ice cream trade which was to be expected. Other industries using containers seem to have increased their requirements to some extent and this in part has taken care of any seasonal decline. Box manufacturers are fairly busy and appear to be holding their production close to demand so as not to be caught with any appreciable warehouse stocks at inventory period. Prices both in containers and boxes are holding their own.

Inquiries for fine papers also are plentiful, but the demand is about the same as it has been. Some jobbers report a slight increase, but others say the demand is unchanged. However, most agree that due to inquiries there should be a fair volume from now until the end of the year.

Newsprint is fairly active. Prices show little change and the price range is as steady as it has been for some months. Advertising lineage keeps up to average and with the holidays in the offing there is expected to be a big improvement.

Paper stock men say mill demand is not so good. Demand for the lower grades of paper is especially weak, they say. The rag market also is irregular. Building papers are moving a trifle more rapidly, particularly roofing papers. The trade is expecting a noticeable increase on these after the first of the year.

Syracuse Container Corp. Raises Pay

SYRACUSE, N. Y., October 15, 1934—Pay increases averaging 7½ per cent. for the 60 employees of the Syracuse Container Corporation, 911 Hiawatha Boulevard, have been announced by O. M. Masters, vice-president and manager. This brings the wage for factory employees to a figure more than two-thirds higher than it was a year and a half ago when the firm was organized. With a new total payroll of $1,350 weekly, the average wage is now $22.50 for the organization.

The Syracuse Container Corporation was formed April 1, 1933. It occupies the plant formerly operated by the Delavan Corrugated Box, Inc., manufacturing corrugated and solid fiber containers and packing materials. The company specializes in supplying central New York users of these products.

When the corporation was formed, practically the entire plant organization was retained. The executive personnel, in addition to Mr. Masters, are J. M. Birks, sales manager; E. E. Slingerland, R. M. Rooney, Howard Shaver and G. M. Kincade, representatives.

"These pay increases," Mr. Masters stated, "are the result of substantial increases in the volume of business handled by the plant since this corporation took charge."

David M. Anderson Congratulated

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., October 15, 1934—David M. Anderson, prominently identified with the St. Regis Paper Company, was the receipent of congratulations this week from his many friends upon the observance of his 79th birthday. His career in the industry started 34 years ago when he founded the St. Regis Paper Company with the late George C. Sherman. The mill was located at Deferiet in 1900 but since that time the company has developed rapidly. For several years he was also connected with the Taggart Paper Company but at this time he is among the largest stockholders and a director in the St. Regis concern. He is a graduate of the Brooklyn Polytechnic Institute.

The Swigart Paper Company has recently issued its catalog and price list as of October 1, 1934, containing 205 pages of complete information on all lines handled by the Chicago distributors. The price list is in loose leaf form and contained in a handsomely done cover loaned to the customer for retaining current price sheets to be inserted from time to time. The cover is much too handsome to lose sight of and thus Swigart is more or less assured a constant position in or on the desks of Chicago paper buyers reached through this catalog distribution.

JORDAN FILLINGS
BEATER BARS
and
BED PLATES

Fillings in a jordan or beater are as important as the "works" in a watch. When they "let go" everything stops. Refining and beating costs, and what is more important,—production schedules—depend on them.

Noble & Wood bars are of carefully selected materials, accurately machined. Every precaution is taken to assure you a high quality product that will give you satisfactory service.

A complete stock of fillings enables us to give you prompt delivery—all sizes of steel (regular and heat treated), stainless and bronze bars, for every standard type of beater or jordan. Also patented End Grain Woods and Assembled Shell Fillings.

Place your next order with Noble & Wood and let us prove our claims concerning materials and service.

THE NOBLE & WOOD MACHINE CO.
HOOSICK FALLS, N. Y.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Chicago, Ill.—The Dearborn Paper Company, 860 Rees street, has plans for a new plant at Twenty-first and Loomis streets, to be one and two-story, 130 x 460 feet. It will be used for the manufacture of different paper specialties, as well as storage and distributing service, and is estimated to cost close to $80,000, with equipment. J. M. LaPoint is company engineer.

Worcester, Mass.—The Bancroft Tissue Corporation, recently organized with capital of 500 shares of stock, no par value, plans operation of local plant for manufacture of tissue paper specialties. Arthur S. Lewis, 24 Portland street, city, is president and treasurer of new company.

Fort Wayne, Ind.—Fire recently damaged a portion of plant of the Fort Wayne Corrugated Paper Company. An official estimate of loss has not been announced. The damage will be replaced, represented largely by raw material.

Chicago, Ill.—Envelopes, Incorporated, 928 North LaSalle street, has been organized with capital of 1000 shares of stock, no par value, and plans operation of local paper converting plant for manufacture of commercial envelopes and kindred paper goods. Incorporators of new company include William L. Woody and Roger J. Kiley.

Adrian, Mich.—The Simplex Paper Corporation, Palmyra, Mich., manufacturer of waterproof building papers, corrugated paper stocks, insulating papers, etc., has approved plans for new branch plant at Adrian, for which superstructure will be placed under way at once. General contract has been awarded to the Robb-Ott Company, Adrian. Estimated cost has not been announced.

Chicago, Ill.—The Western Jewelry Case Manufacturing Company, 29 North Wells street, manufacturer of paperboard, cardboard and other boxes and containers for jewelry service, has leased second floor in building at 174-76 North Franklin street, and will occupy for new plant. Present factory will be removed to new location.

Whippany, N. J.—The Agar Manufacturing Company, Thomas street, manufacturer of corrugated paper boxes and containers, will soon have new building ready for occupancy, recently referred to in these columns, and will place in service at once. It will represent an investment of close to $100,000, including equipment. General contract is being carried out by the United Engineers & Constructors, Inc., 80 Park place, Newark, N. J.

Chester, Pa.—The Scott Paper Company is securing large pulpwood supply from Baltic ports, with steamers arriving and unloading at the Marine Terminal, Wilmington, Del. The mill is running on a high capacity schedule in all divisions.

Buffalo, N. Y.—Alan D. Oppenheimer, Inc., 70 River street, waste paper, etc., has recently leased the building at 62-64 Main street, and will occupy for a new warehouse unit, for storage and distribution.

Joliet, Ill.—The Mid-West Wall Paper Mills, Inc., has arranged for a change in capitalization from $95,000 and 1000 shares of stock, no par value, to 950 par value shares stock, and 100,000 shares stock, no par value.

Drummondsville, Que.—Canadian Celanese, Ltd., manufacturer of cellulose rayon products, is running on a capacity production schedule, 24-hour day basis, giving employment to full working force in all departments. It is proposed to maintain operations on this scale for an indefinite period.

San Jose, Cal.—The Muirson Label Company, 435 Stockton street, manufacturer of paper labels, tags, etc., has awarded general contract to Charles Thomas, 127 Clayton avenue, city, for proposed new addition to paper converting plant, recently referred to in these columns, and superstructure will be placed under way at early date. It will be one-story, 126 x 165 feet, equipped for cutting department, storage and distributing divisions. New unit is reported to cost close to $40,000, including equipment. Miscellaneous contracts for plumbing, sheet metal work, etc., are also being awarded. Charles McKenzie, Twohy Building, city, is architect.

Rimouski, Que.—Price Brothers & Co., Ltd., Quebec, Que., have plans for a new saw mill in connection with pulpwood operations in vicinity of Rimouski. The new plant will be located about 20 miles from town, and will be equipped especially for hardwood service. It is reported to cost close to $25,000, with machinery.

Helsingfors, Finland—Enso Gutzeit & Tornator, Ltd., pulp products, has approved plans for construction of a new sulphite pulp mill near lumber properties. It will consist of several one-story buildings, equipped for an initial capacity of about 80,000 tons of pulp per annum. New plant will cost over $150,000, with equipment, and is scheduled to be ready for service early next year.

New Companies

Buffalo, N. Y.—The Seaman-Cowan Paper Company, Inc., has been incorporated with capital of $100,000, to manufacture and deal in paper products. Incorporators of new company include Karl C. Franklin, 200 South Union road, Williamsville, N. Y., and Harold L. Cowan, 96 Cleveland avenue, Buffalo.

New York, N. Y.—The Roller Tissue Company, Inc., has been organized with capital of 200 shares of stock,

no par value, to manufacture tissue paper products. The incorporators are George S. Wallace, 130 Post avenue, New York; and Menachem Naphtali, 2062 Sixty-second street, Brooklyn.

Los Angeles, Cal.—The Dependable Paper Company has been chartered with 500 shares of stock, no par value, to manufacture and deal in paper goods. R. M. Robertiello, Los Angeles, is one of the principal incorporators. New Company is represented by Maurice Saeta, Pacific National Bank Building, city.

New York, N. Y.—National Fibre Corporation has been organized with capital of 200 shares of stock, no par value, to manufacture and deal in fibre products. The incorporators are Milton P. Schreyer, Merchandise Mart, and Max Skolnik, 5256 Drexel boulevard, both Chicago, Ill. New company is represented by Leon London, 21 East Fortieth street, New York.

New York, N. Y.—The Acme Cabinet Company has been incorporated with capital of 200 shares of stock, no par value, to manufacture and deal in paper and cardboard boxes and containers for jewelry and allied service. The incorporators include Sol Weissman, 1368 Forty-first street, Brooklyn, N. Y.; and Morton E. Ornitz, 674 West 161st street, New York, N. Y.

Hawley Co. Reorganization Plan Under Way

PORTLAND, Ore., October 11, 1934—A corporate reorganization of the Hawley Pulp & Paper Company is under way, with approval of a large majority of security holders who have deposited their holdings of the firm's notes, it was made known with filing by the firm of petition under section 77B of the bankruptcy act in Federal Judge McNary's court.

Although the filing comes under the bankruptcy statute, it is by no means a bankruptcy, since there is merely a legal step made necessary to accomplish the reorganization.

The petition, as filed by the reorganization committee composed of Isaac D. Hunt, Watson Eastman, E. S. Collins, A. S. Kerry and W. Lair Thompson, points out that the company has operated under a loss for more than three years and that the firm is in default with its sinking fund requirements of $295,459.44, and will owe $134,500 or more on July 1. In addition, it has defaulted on a promissory note to Blyth & Co., Inc., for $500,000 due July 1, 1934.

Cassius R. Peck is attorney for the company under its reorganization. A hearing for security holders is set for 10 a. m. October 29 before Judge McNary, when security holders who object to the reorganization may present their side. The security holders, however, are generally in favor of the reorganization, as shown by the deposit of 74.8 per cent. of the bonds; the entire Blyth & Co. note, 77.6 per cent. of the first preferred stock, 93 per cent. of the second preferred stock and 87 per cent. of the common stock voting certificates.

Ralph Burnett Goes to Chicago

HOLYOKE, Mass., October 16, 1934—A farewell dinner was tendered Ralph Burnett of the general offices of the American Writing Paper Company, Inc., at the Hotel Nonotuck last week who has been transferred to the Chicago offices of the company and begins his new duties this week.

Since 1926 he has been connected with the bond paper division under A. C. Lamb who made the presentation, the gift being a traveling bag. Mr. Burnett takes over the territory of Joseph Daly who had resigned.

Three Paper Codes Pending

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 17, 1934—Three codes of interest to the paper industry are again pending down here at NRA for further action.

The new paper and pulp code as presented to NRA at a public hearing on June 29 has not been acceptable to that body because of its present pricing policy. The industry, of course, has indicated to NRA that unless the pricing policy is left the way it wishes it that it will be impossible for the industry to pay higher wages.

Word received here is to the effect that at the PIA meeting in New York on October 12 the code authority turned down the amendments offered by NRA as a substitute for the new code which the industry presented and which was not acceptable to NRA.

All of this leaves the matter now in the hands of NRA with the result that it is expected that the latter part of this month Deputy Administrator D. A. Tulley will make a wage recommendation to NRA. This is provided for in the executive order signed by the President when the code was signed originally. It is believed here that Mr. Tulley will recommend 40 cents an hour or higher.

The newsprint code which has never been signed and about which there has been so much difficulty between the newspaper publishers and the newsprint manufacturers has gone forward from the office of the Division Administrator in charge of this code to the National Recovery Board. There is talk in some quarters that this code may never be signed, but others believe that it is "now on its way."

NRA is also now awaiting action by the pulpwood industry in connection with its code. It will be recalled that the labor wages in this code were not in agreement with the wages in the lumber code. NRA has again revised this code and it is now in the hands of a committee of the industry for its final action. It is reported here that NRA officials will do nothing further in the matter and that it is now up to the industry.

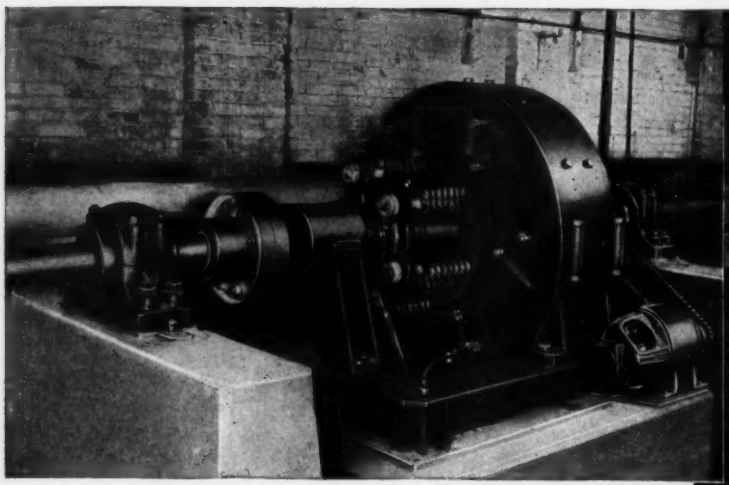
Ontario Paper Industry Happenings

TORONTO, Ont., October 15, 1934—Improvement in earnings of Westminster Paper Company, Ltd., in the year ending July 31, 1934, was due to substantial increase in sales and to economies effected in manufacturing, states J. J. Herb, president, in submitting the annual report to shareholders. The improvement was effected in spite of a material decline in selling prices and higher costs for raw materials, he pointed out. The statement shows profit before depreciation, bond interest and income taxes at $91,487, compared with $77,939 for the previous year. After depreciation allowances of $35,311, compared with $29,900 the previous year, and $12,500 for income taxes, compared with $8,000, there remained $43,676 available for bond interest of $17,989. Bond interest was thus earned nearly two and a half times after all charges, or over four times after income taxes, but before depreciation.

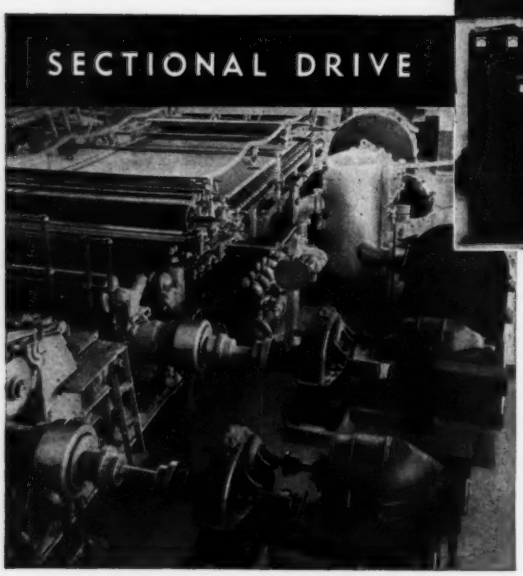
The Consolidated Paper Corporation, Ltd., recently completed their sawing operations for the season at the mill in Pembroke, Ont. Work at the plant lasted nearly three months and the past summer was the first in some years that it has been running.

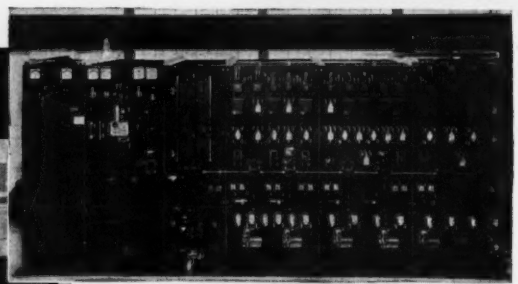
Freight traffic via the Cobourg-Rochester ferry route has greatly increased lately, between forty and fifty cars of pulpwood per week having been moved across the lake at Cobourg, Ont. It is reported that a large contract is being made for 100 cars of this class of freight per week to be moved to the United States via that route.

MODERNIZE FOR PROFIT



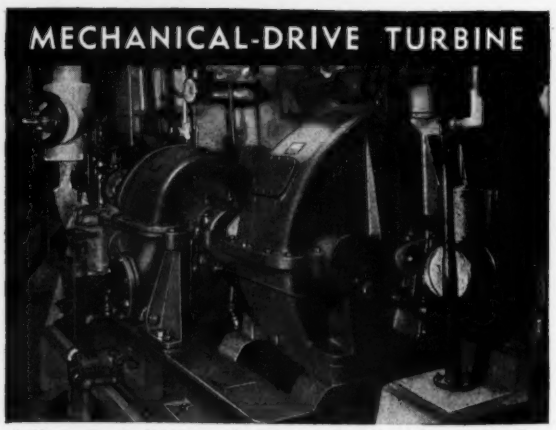
Above: In G-E single-motor drives, motor and generator characteristics are matched electrically, assuring close speed regulation, and controlled to perform with the precision of a single unit. Right: Simple, conveniently located remote controls permit easy, accurate speed changes





Maximum flexibility of the machine, and accessibility, are provided by the G-E sectional drive. The units are also matched electrically to give close speed regulation

Above, right: Reduction in paper breakage is made possible by G-E compensated Selsyn speed regulators, mounted on the sectional-drive control panel, giving equal motor response at all paper-machine speeds

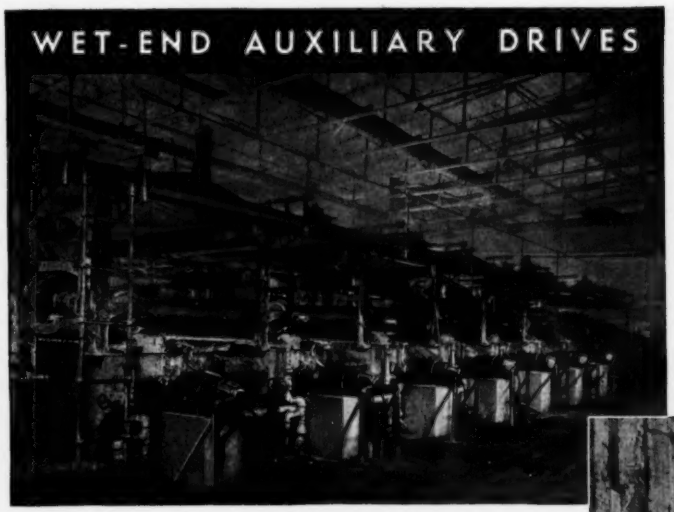


G-E mechanical-drive turbines, providing both power for the paper machine and steam for the dryers, offer an economical method of meeting two important paper-machine requirements

G E N E R A L

WITH THESE G-E DRIVES

BY placing G-E drives on their paper machines, many mills have been able to cut their production costs and add to their profits. G-E single-motor, sectional, and mechanical-turbine drives, developed by experienced engineers who have devoted years of study to the particular drive requirements of paper machines, offer you, too, the all-important qualities of reliable service, economical operation, and long life.

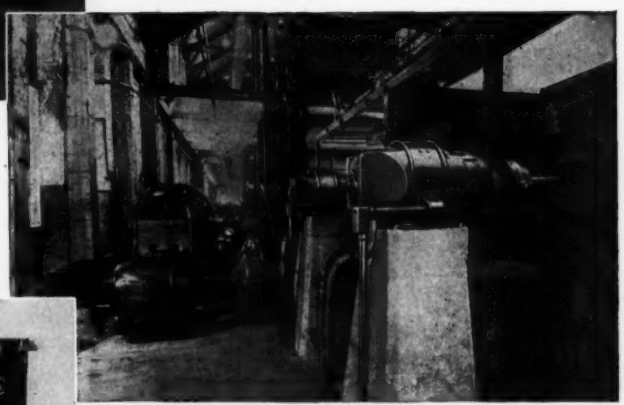


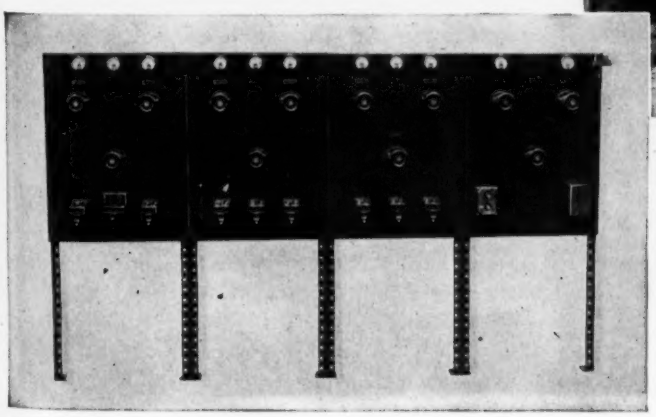
Direct-connected to the cylinders and rolls, G-E gear-motors in this paper mill make possible a 25-per-cent reduction in felt costs, speed up production, and give a greater uniformity of product. Above: Seven G-E 5-hp., 40-rpm. gear-motors driving cylinder molds. Right: Two G-E 10-hp. gear-motors driving suction rolls, and a 50-kw. G-E generator supplying power to the gear-motors

In addition, G-E auxiliary drives for the cylinders and rolls of board machines will also save you money, and they can easily be adapted to your existing drives or to new equipment. Concerning the savings resulting from the installation of a G-E wet-end auxiliary drive in his mill at a cost of $8000, the general manager of a large paper company (name on request) writes:

> "The drive has more than paid for itself in the first year of operation, bringing us a remarkable return on the investment.
>
> "We find that a large direct saving has been realized in the reduction of felt costs alone. In addition, a wider sheet can be produced than formerly, as a result of reduced felt stretch; less steam is required in the dryer; and the finished product is stronger and of better quality."

Savings like this may be possible in your mill. Why not investigate? Get in touch with the nearest G-E office, or write General Electric Company, Dept. 6A-201, Schenectady, N. Y.





Left: Control of G-E auxiliary drives is convenient and easy to operate. Motor protection is provided by individual overload relays and fuses

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GENERAL ELECTRIC

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ESTABLISHED 1872

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FOREIGN PAPER TRADE INCREASES

Exports of paper and paper products from the United States duly July reached an aggregate value of $1,544,864, according to the Forest Products Division of the Department of Commerce. This amount represents an increase of 13 per cent over the preceding month and is the highest recorded for any July since 1931. That this increase is not entirely due to a higher price level is readily discernible upon a comparison in the volume of shipments of the various items. With the exception of newsprint exports, which are 75 per cent under those during the corresponding month last year, and relatively small decreases in a few minor items, exports of paper and paper products were substantially larger than during July, 1933, and in most instances exceeded the June (1934) shipments. The largest gains were registered in such leading items as book, writing, and wrapping papers, boards (including vulcanized fiber), insulating and wall boards, and paper boxes. Exports of greaseproof and waterproof papers were also higher than in either June or July of last year, while exports of tissue and crepe papers and toilet paper did not show much change. Exports of paper towels and napkins and sheathing paper were appreciably lower. Shipments abroad of over-issue newspapers, in which the United States enjoys a substantial trade, declined 16 per cent as compared with June, but exceeded last year's shipments by 15 per cent.

Imports of paper base stocks into the United States during July picked up, but with the exception of pulpwood and bleached sulphate pulp did not attain the volume of the July (1933) receipts. Imports of wood pulp as a whole during July as compared with the corresponding month last year were less by 15 per cent, with the heaviest decreases occurring in mechanical groundwood, bleached sulphite, and kraft pulp, receipts of which declined between 20 per cent and 25 per cent. Owing to the higher level of prices, however, aggregate imports show an increase of 1 per cent in value. Imports of rags for paper-making declined 41 per cent and imports of other waste 26 per cent compared with last year's receipts. In contrast to these decreases, however, imports of pulpwood during July exceeded those of the corresponding month in 1933 by 55 per cent in volume and 61 per cent in value. As previously mentioned, imports of paper base stocks during July were generally higher than during the preceding month, receipts of pulpwood having risen nearly 70 per cent in both volume and value, imports of wood pulp 16 per cent in volume and 10 per cent in value, and imports of rags and other waste for paper-making 17 per cent in value, but showing a drop of 5 per cent in volume. Of total imports in this class, valued at $7,365,816, $5,701,034 represented wood pulp imports, $1,456,229 pulpwood imports, and $208,553 imports of rags and other waste stock.

Imports of newsprint paper into the United States during July declined 2,660 tons as compared with June receipts, but exceeded those of July, 1933, by 21 per cent. This increase was not reflected in the value, however, owing to the lower average price per ton during the current year. Of other classes of paper and paper products received from abroad during July, kraft wrapping, cigarette paper, and some classes of boards registered increases, while printing papers (other than newsprint), wrapping papers, writing papers, pulp boards and paper boards declined. Total imports of paper and paper products during July were valued at $7,741,586, of which $6,887,951 represented 176,095 tons of newsprint and $853,635 all other papers and paper products. Imports during June were valued at $7,891,223 and during July, 1933, at $7,039,154.

FOURTH QUARTER ENTERED WITH BASIC TRENDS FAVORABLE

In spite of the irregular tendencies of industrial sales and the moderate decrease in industrial activity during the third quarter, the trend of the remaining five primary factors enabled higher levels to be reached than in the comparative period of 1933. Although the principal indices reflected reduced industrial activity, wages and employment gained, prices rose, and bank clearings at centers outside of New York were held constantly above last year's positions, according to a survey of industry for the third quarter of 1934, which has just been completed by the Research Department of Dun & Bradstreet, Inc.

While a number of industries curtailed production because of labor difficulties, these were not a major factor in reducing output. Curtailment, where it occurred, was due chiefly to the industry bringing production into alignment with current distributive requirements. Sales of meat and other food products were well ahead of last year's totals. This also was true of automobiles, motor accessories, radios, tobacco manufacturers, advertising lineage, elec-

trical equipment, aircraft, amusements, and building. For chain store groups and mail order houses some spectacular increases were revealed in the comparison with the 1933 totals.

Third quarter failures at 2,631 compared with the 1933 total of 4,009, representing a decrease of 34.4 per cent, while the liabilities at $54,225,567 were 41.2 per cent smaller than the 1933 total of $92,104,058. Third quarter bank clearings for cities outside of New York totalled $19,661,756,000, an increase of 8.9 per cent from the comparable 1933 aggregate of $18,069,902,000.

The preponderance of favorable elements shows that industry is on a higher level than a year ago and that, at the beginning of the final quarter of 1934, it is in a strong position for a continued forward movement.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Industry Production Ratios for designated weeks.

	Reporting Mills		Total Production
	Number	Capacity	Ratio
*Week ending September 1, 1934.....	267	107,017	62.3%
*Week ending September 8, 1934.....	288	107,412	52.2%
*Week ending September 15, 1934.....	280	110,214	57.5%
*Week ending September 22, 1934.....	282	118,178	60.2%
*Week ending September 29, 1934.....	275	116,338	62.9%
*Week ending October 6, 1934.....	201	75,399	65.9%

The weekly paper capacity (based on 6 days of 24 hours each) for all mills operating wholly or partially under the General Code for the Paper and Pulp Industry is approximately 175,000 tons. This figure has been tabulated from mill questionnaires and in certain instances from daily capacities given in Lockwood's Directory of the Paper and Allied Trades.

Detailed statistics showing the number of mills reporting by ratio groups are given below:

Ratio Limits	September 1, 1934	September 8, 1934	September 15, 1934	September 22, 1934	September 29, 1934	October 6, 1934
0% to 50%	116	148	128	110	95	72
51% to 100%	151	140	152	172	180	129

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

Week ending September 8.....	53 per cent
Week ending September 15.....	67 per cent
Week ending September 22.....	62 per cent
Week ending September 29.....	64 per cent
Week ending October 6.....	64 per cent

Revised statistics covering delinquent mill returns will be shown in later reports.

Canadian Pulp Exports Increase

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 15, 1934.—Exports of wood pulp from Canada during July exceeded those of the preceding month by nearly 12 per cent, but were nearly 15 per cent under the July, 1933, shipments. Except for kraft pulp, shipments of all classes were greater than during June, but failed to reach the level of the corresponding month last year. Of total exports amounting to 1,109,983 hundredweights, kraft pulp (unbleached sulphate) accounted for 115,618 hundredweight, bleached sulphite for 464,927 hundredweight, unbleached sulphite 180,375 hundredweight, mechanical ground wood 318,589 hundredweight, and other wood pulp and screenings 30,474 hundredweight. The United States took 77 per cent of the July shipments.

Phillips Dennett Heads Paper Machinery Code Authority

Phillips Dennett, of the Bird Machine Company, South Walpole, Mass., was elected chairman of the Permanent Code Authority of the Pulp and Paper Machinery Industry which is a division of the Machinery and Allied Products Industry, at a meeting held at the Commodore Hotel, New York, on Wednesday, October 10.

In addition to Mr. Dennett, the other members of the Code Authority are: Stanley G. Bevis, Bevis Machine Company, Middletown, Ohio; A. B. Clark, J. C. Ross Engineering Corporation, New York City; J. E. Waterhouse, Montague Machine Company, Turners Falls, Mass. and W. B. Wilshusen, Cameron Machine Company, 61 Poplar street, Brooklyn, N. Y.

In addition to the executives of machinery companies, the meeting was attended by: G. A. Barber, Assistant Deputy Administrator, Francis E. Lee and F. A. Davidson, Administration Members, all representing the NRA. Alexander Konkle, the representative of the Machinery and Allied Products Industry, which is an organization representing a large group of machinery associations, was also present.

A meeting of the newly elected Permanent Code Authority was held immediately after the election of this Authority by the employers representing machinery companies in this industry and a Trade Practice Plan was adopted in conformity with the code for this industry which was approved by the NRA on August 11th.

Stuff Preparation Symposium at TAPPI Annual Meeting

The Stuff Preparation Committee of the Operating Division of the Technical Association of the Pulp and Paper Industry has announced its plan of holding a symposium on stuff preparation at the annual meeting of the association during the week of February 18.

Anyone interested in presenting a paper at this meeting should notify the Secretary of TAPPI, 122 E. 42nd street, New York, or D. Manson Sutherland, Chairman of the Stuff Preparation Committee, Broad Street Bank Building, Trenton, N. J., before November 15.

New England TAPPI to Discuss Grading

The New England Section of the Technical Association of the Pulp and Paper Industry will meet on Friday, October 19 at the Nonotuck Hotel, Holyoke, Mass.

Charles W. Boyce, executive secretary of the American Paper and Pulp Association will talk on "The Industry's Operation Under the Code."

John G. Strange, Secretary of the Central Grading Committee will also talk on this subject.

Motion pictures of the TAPPI fall meeting at Portland, Ore., will be shown by C. H. Champion of R. T. Vanderbilt Company, New York.

Option on Crane Mill Lapses

The Rogers Paper Manufacturing Company of South Manchester, Conn., will occupy space in the Crane & Co. mill at Westfield, Mass. October 15, and negotiations are said to have started to lease this plant to another company according to the *Wall Street Journal*. For more than a year the Rogers firm has carried on experimental work on new lines in this establishment, having an option of purchase which has lapsed.

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Paper Specialties

Washable Wall Paper. Louis C. Fleck assignor to Paper Patents Co. U. S. pat. 1,955,626 (April 17, 1934).—A coating containing material which can render it water-resistant (*e.g.*, casein, casein and formaldehyde, etc.) is applied to a low-cost base paper. Designs are printed on the coating by means of a potentially waterproof water ink (*e.g.*, an aqueous suspension of pigments, fillers and binders), and the printed paper is treated (*e.g.*, with an acid reagent) to develop waterproofness. A glossy surface, if desired, may be obtained by applying a wax emulsion to the surface and polishing with brushes.—A. P.-C.

Wrapping Paper for Photographic Goods. Samuel E. Sheppard and Herbert J. Dietz assignors to Eastman Kodak Co. U. S. pat. 1,954,333 (April 10, 1934).—Papers intended for contact with light-sensitive materials (*e.g.*, photographic films) are prepared by loading the paper base with a size and a light-excluding pigment (*e.g.*, artificial graphite) and subsequently applying identification marks with an ink comprising a contrasting pigment (*e.g.*, manganese dioxide), both pigments having the same catalytic effect with regard to the hydrogen peroxide produced by the autoxidation of materials comprised in the finished paper.—A. P.-C.

Continuous Process of Wall Board Manufacture. Roland B. Respess and Newton A. Robbins assignors to Respats, Inc. U. S. pat. 1,951,167 (March 13, 1934).—The invention is similar in a general way to Respess' U. S. pat. 1,897,620, of Feb. 14, 1933, but differs from it in the following respects: use of the special Respess reducing mill and the subsequent steps of air separation are avoided; classification of the fibers is accomplished in a pre-reduction step by step by dry-screening of the shredded wood; standard equipment is largely used; all grinding and (or) reducing operations of the chipped or shredded wood are carried out in presence of free water.—A. P.-C.

Resinous Panel Board and Method of Producing Same. Charles L. Keller assignor to The Richardson Co. U. S. pat. 1,956,866 (May 1, 1934).—Fibrous board is impregnated successively with a synthetic resin and with bitumen (or is impregnated with a mixture of synthetic resin and bitumen), and is pressed and heated to "cure" the resin.—A. P.-C.

Paper Waxing Composition. George J. Manson, U. S. pat. 1,953,085 (April 3, 1934).—A finely dispersed paraffin wax emulsion is obtained by incorporating the wax with a solution of silicate of soda, with or without addition of a protective colloid such as casein or glue; a precipitant such as lime, alum, etc., is added to react completely with the silicate of soda.—A. P.-C.

Method of Treating Roofing Elements. Lester Kirschbraun assignor to The Patent and Licensing Corp. U. S. pat 1,955,131 (April 17, 1934).—Strip shingles or other equivalent roofing elements are arranged in pairs, the elements of each pair being placed together back-to-back and with contour edges flush. The butt portions of the elements of each pair are bonded together sufficiently to prevent these portions from separating when the pair of shingles is dipped as a unit in a bath of asphalt or other equivalent coating material. The shingles of each pair may be separated immediately after the shingles have been dipped in the bath, or after the asphalt has hardened sufficiently to avoid pulling into threads when the shingles are separated.—A. P.-C.

Apparatus for Manufacturing Porous Bodies from Fibrous Material. Kinrad Erdmann. U. S. pat. 1,953,704 (April 3, 1934).—In the manufacture of light building plates from wood wool united and hardened by means of sorel cement, the fibrous mass is compressed to a volume which is smaller than that corresponding to the capacity of the mold, the elasticity of the material being thereby destroyed to such an extent that there is shown nearly no tension after the mass has expanded to the capacity of the mold. This permits of using much lighter molds.—A. P.-C.

Tapered Roofing Shingle. Henry C. Avery assignor to The Patent and Licensing Corp. U. S. pat. 1,952,962 (March 27, 1934).—A waterproof sheet board made on a paper machine is cut into slabs, and the slabs are split along a diagonal plane to form two tapered shingles from each slab.—A. P.-C.

Manufacture of Sheet Material. Albert C. Fischer assignor to The Philip Carey Manufacturing Co. U. S. pat. 1,951,728 (March 20, 1934).—Sheet material suitable for expansion joints, roofing, floor covering, etc., is made of

fibrous material such as broom corn, cocoanut fiber, sisal, etc., which is treated with oily material such as cotton seed oil, wood oil, glycerine, soap solution, etc., pressed to remove the excess oil, and mixed with blown asphalt having a melting-point of about 240° F.—A. P.-C.

Process of Extruding Sheet Material. Albert C. Fischer assignor to The Philip Carey Manufacturing Co. U. S. pat. 1,952,038 (March 20, 1934).—A mixture of coarse fibrous material such as cotton fibers, hemp, sisal, cocoanut fiber, etc., and of high melting-point asphalt is formed into sheets by forcing through a steam-heated die-head from which it emerges as a strip that is thinner in the center than at the edges. The strip is rolled to make it of uniform thickness.—A. P.-C.

Fibrous Web for Impregnation Purposes. George A. Richter assignor to Brown Co. U. S. pat. 1,956,045 (April 24, 1934).—A light, highly porous sheet, which need not have high tensile strength, is prepared from an unbeaten unbleached chemical pulp that has been purified to an alpha-cellulose content of 93 to 96%. Such a sheet can absorb up to 300% of its own weight of asphalt in passing at 100 ft. per min. through a distance of 3 ft. in an asphalt bath at 300° to 350° F.—A. P.-C.

Sheet Material Suitable for Roofing. Philip W. Codwise assignor to Certain-Teed Products Corp. U. S. pat. 1,948,979 (Feb. 27, 1934).—A weather-resistant material comprises a sheet of felt containing a substantial amount of soda pulp, impregnated with a waterproofing agent such as asphalt.—A. P.-C.

Artificial Leather Manufacture. Milton O. Schur assignor to Brown Co. U. S. pat. 1,956,179 (April 24, 1934). —A web or felt is formed in a dry way from a supply of fibers throughout which a suitable coagulant (*e.g.*, magnesium chloride) has been uniformly distributed. The web is impregnated with rubber latex and dried—A. P.-C.

Method for Producing Waterproofed, Backed, Crepe Paper. Charles C. Willis assignor to John Waldron Corp. U. S. pat. 1,956,750 (May 1, 1934).—A predetermined thickness of adhesive (*e.g.*, casein, dextrin, starch, glue, etc.) is applied to the paper by means of a roll coating machine. The paper is passed over an arch, the time required being such as to permit a limited amount of the moisture in the coating to penetrate into the paper. The latter is then passed around a large heated drum, with the adhesive coating in contact with the drum. A waterproof coating (*e.g.*, asphalt) is applied to the paper while in contact with the drum, and the paper is then stripped by means of a creping doctor. A backing sheet is applied to the waterproofed side of the creped paper.—A. P.-C.

Corrugator. Leonardo J. List assignor to Samuel M. Langston Co. U. S. pat. 1,954,881 (April 17, 1934).—In order to prevent uneven distribution of adhesive over the surface of the applying roll and prevent the silicate solution from getting on the corrugating rolls of machines of the type shown in the Sieg patent 1,835,816 and the Langston patents 1,186,997, 1,186,998 and 1,642,782, a series of inserts or fillers are provided which extend into the circumferential grooves of the adhesive applying roll.—A. P.-C.

Treated Paper and Process of Producing Same. James Reid. U. S. pat. 1,956,961 (May 1, 1934).—China wood oil is heat-treated at a temperature above 355° C. but maintained in a liquid condition. A drier is added after cooling the oil below 355° C. Paper is impregnated with the treated oil.—A. P.-C.

Artificial Leather. Milton O. Schur assignor to Brown Co. U. S. pat. 1,955,892 (April 24, 1934).—A waterleaf sheet made of a furnish consisting of 25 to 50 per cent of wood pulp (purified to 93 to 96 per cent alpha-cellulose content) and 25 to 50 per cent wool fiber is impregnated with rubber latex.—A. P.-C.

Synthetic Insulating Lumber That is Not Attacked by Molds. Orland R. Sweeney assignor to Iowa State College of Agriculture and Mechanic Arts. U. S. pats. 1,946,952 and 1,946,953 (Feb. 13, 1934).—*No. 1,946,952*—Corn stalks are broken up into comparatively small pieces which are commingled with water and the resulting mass is treated with copper sulphate solution, pressed and dried. *No. 1,946,953* relates to a similar process in which, however, the copper sulphate solution is applied to the material while still warm after pressing and drying by heat. —A. P.-C.

Heat-Sealable Opaque Wrapping for Foods. Walter W. Herrick assignor to Riegel Paper Corp. U. S. pat. 1,946,141 (Feb. 6, 1934).—Paper is coated on one or both sides with wax containing titanium oxide.—A. P.-C.

Method of Manufacture of Book Paper to Prevent Two-Sideness. James d'A. Clark and John E. Graves assignors to The Mead Corp. U. S. pat. 1,950,351 (March 6, 1934).—Additional filler, in suspension in a solution of a suitable sizing or adhesive such as boiled starch, is applied to the wire side of the paper after it has arrived at a sufficiently definite stage of formation. This is best carried out by feeding the filler suspension to a pipe located under the wire between the suction boxes and the couch roll and provided with a slot extending the full width of the wire.—A. P.-C.

Fireproofing Cellulosic Materials. Ernest E. M. Payne. U. S. pat. 1,942,977 (Jan. 9, 1934).—Fiberboard is treated (in either order successively) with a solution of a soluble acid phosphate of a metal such as calcium which yields as insoluble phosphate and with a solution of a soluble phosphate such as ammonium phosphate which precipitates the insoluble phosphate in the cells of the material treated. Various other substances such as boric acid and sodium aluminate or silicate also may be used. —A. P.-C.

Impregnating Fiber Board. Alexander Winogradow. U. S. pat. 1,945,714 (Feb. 6, 1934).—The board is impregnated with a solution of a salt such as ammonium dihydrogen phosphate and a portion of the solution is then removed from the board, throughout its thickness, by squeezing it up to substantially its elastic limit; the board is then dried.—A. P.-C.

Machinery

New Rewinder. Svsnsk Pappers-Tidn. 37, no. 8:240, 245 (April 30, 1934).—Description of a new rewinder construction, system Goebel VII, producing uniform, soft elastic rolls, without entrapped air.—C. J. W.

Entrapped Air In Paper Rolls. V. Hornstein. Papier-Ztg. 59, no. 48 34:600-601 (April 28, 1934).—In answer to the article by W. Kohler in Papier-Ztg. 59:472 (1934), the author demonstrates that incorrect drying of the paper is to a great extent responsible for the subsequent formation of air pockets in paper rolls and that much can be done upon the paper machine for preventing this trouble. Soft wound rolls are not desirable for transport and further treatment upon the converting machine. He recommends winder constructions where certain devices control the hardness of the winding so that it will be uniform throughout the entire roll and will not increase with its weight.—C. J. W.

Electrically Recording Scales for Control in the Paper Machine and Shipping Room. G. Linden. Finnish Paper and Timber J. 16, No. 7 : 337-339 (April 12, 1934). —The printweight scales of the Toledo Scale Company are discussed.—C. J. W.

Knitter for Pulp, Ground Wood and Similar Materials. J. D. Ullgren, Stocksund. Swed. pat. 79,843 (March 26, 1929).—The knitter consists of one or more screen plates over which are movable bodies which are made to exert a pulsating motion to the stock.—J. F. O.

Stock Centrifuge for the Purification and De-Watering of Pulp. J. H. Wallin, Bengtfors. Swed. pat. 79,845 (Nov. 7, 1929).—J. F. O.

Screw Press for the Pressing Out of Liquids from Solid and Liquid Stock Mixtures. A/S Kampens Mek. Verksted, Oslo. Swed. pat. 79,847 (July 11, 1930). —J. F. O.

Steam Inlet Device for Drying Cylinders on Paper Machines and Similar Revolving Apparatus. Firma J. M. Voith, St. Polten, Aust. pat. 136,609 (Oct. 15, 1933). —J. F. O.

Steam Suction Device, Especially for the Dryers of Paper, Pulp and Similar Bands. W. H. Dixon, Grimsby. Ger. pat. 596,292 (Nov. 20, 1932).—J. F. O.

Device for Softening the Wood to be Barked and the Conveyance of Same to the Barking Machine. Luigi Angeli, Pols. Aust. pat. 136,880 (Nov. 15, 1933).—J. F. O.

Arrangement for Hosing Out Sulphate Pulp or Other Pulps from Diffusers or from Similiar Wash Containers. C. P. A. Sundberg, Munksund. Swed. pat 79,841 (March 18, 1931).—The washers are arranged in a circle.—J. F. O.

Suction Box Cover for Paper Machines and the Method for the Manufacture of Same. Rhorbacher Lederfabrik Jos. Poeschl's Sohne, Vienna. Aust. pat. 136,501 (Sept. 15, 1933). Addition to Aust. pat. 133,780.—Method for gluing the leather covering to the box proper, by using a water insoluble material, preferably a cellulose ester cement.—J. F. O.

Horizontal Centrifugal Screen for Groundwood, Pulp and Similar Materials. Firma J. M. Voith, St. Polten. Aust. pat. 136,876 (Nov. 15, 1933).—J. F. O.

Measuring and Registering Device for Round Wood. A. O. Baekken, Elevrsum, Nor. pat. 53,410 (July 3, 1931). —J. F. O.

Filter Elements for Rotating Filters. Werkspoor N. V., Amsterdam. Swed. pat. 79,654 (Nov. 10, 1931). —J. F. O.

Process for the Cooking of Pulp with Forced Liquor Circulation. A. Bol. Nordiska Armateurfabrikerna, Stockholm. Swed. pat. 79,561 (Sept. 9, 1930).—J. F. O.

Arrangement for Heat Inter-Change Apparatus, for Example, "Kalorisators." C. Rosenblad, Stockholm. Swed. pat. 79,485 (Sept. 11, 1931).—J. F. O.

Calendar for Smoothening of Paper, Cloth and Similar Materials. Siemens Schuckertwerke Akt. Ges. Berlin. Ger. pat. 593,984 (Jan. 31, 1931).—For assisting in the operation of the calender, a system of compressed oil is used.—J. F. O.

Heat, Acid and Rot-Proof Paper Machine Felt. Firma Christfried Petzoldt, Wolfspfutz. Ger. pat. 593,916 (April 24, 1930).—A covering of magnesium silicate is given to only one or two layers of a multi-layered felt, while the other layers are made from a mixture of asbestos, ramie, hemp or some other similar material.—J. F. O.

Screen Apparatus. C. B. Thorne, Hawkesbury, Ontario. Finn. pat. 15,590 (July 12, 1932).—J. F. O.

Drum for the Screening of Wood Chips. Zellstoffabrik Waldhof, Mannheim. Finn. pat. 15.553 (June 17, 1932).—Means are provided within the drum for raising the wood chips.—J. F. O.

Device for Cooking Wood Pulp, for Bleaching Stock or for Carrying Out Similar Processes. C. A. Geijer, Skoghall. Swed. pat. 79,330 (Jan. 24, 1930).—The purpose of the invention is the intimate mixture of a liquid with solid particles in order to give a uniform product. This is obtained by means of forced circulation, with pumps, sieves and pipe lines.—J. F. O.

Weighing Device for Moving Materials in the Form of a Band, or Web. Wilhelm Proell, Dresden. Ger. pat. 593,155 (Jan. 6, 1931).—J. F. O.

Heat Body for Evaporators. Eberhard Hoesch & Sohne, Duren. Ger. pat. 593,906 (Dec. 8, 1931).—J. F. O.

Layboy Device for Ground Wood and Pulp Drying Machines with Revolving Lay Roll and Automatic Lowering Lay Table. Leif Soerlle, Foldafoss. Nor. pat. 53,266 (July 13, 1928).—J. F. O.

Regulating Device for Multiple Motor Drive, Especially for Setting the "Draw" for Paper Machines. Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland. Ger. pat. 588,296 (Sept. 9, 1932).—J. F. O.

Multiple Motor Drive by Means of Direct Current Motors, Especially for Paper Machines. Allgemeine Elektricitats Gesellschaft, Berlin. Ger. pat. 593,798 (Dec. 17, 1931).—J. F. O.

Cutter and Rewinding Machine. Jagenbergwerke Akt. Ges., Dusseldorf. Ger. pat. 593,428 (Nov. 7, 1925). —J. F. O.

Fourdrinier Section for Paper and Similar Machines. Firma J. M. Voith, Heidenheim. Ger. pat. 593,034 (Dec. 25, 1932).—The device for producing the "shake" is fixed so that it can be moved along the wire, thus making it possible to apply the "shake" at any point along the wire.—J. F. O.

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Arrangement for Certain Types of Heat Exchange Apparatus for Liquids Whose Heat Transfer Surface Consists of Spirally Rolled Sheets. C. F. Rosenblad, Stockholm. Finn. pat. 15,454 (Sept. 9, 1932).—J. F. O.

Process for the Cooking of Pulp with Forced Circulation of the Cooking Liquor. A. Bol. Nordiska Armaturfabrikerna, Stockholm. Finn. pat. 15,423 (April 4, 1932).—The rate of liquor circulation is such that at least 8 per cent of the liquor circulates per minute. The liquor is also heated at least 9° by an external heating device. —J. F. O.

Device for Centrifugal Pumps for the Circulation of the Pulp-Cooking Liquor in Digesters. A. Bol. Nordiska Armaturfabrikerna, Stockholm, Finn. pat. 15,424 (April 22, 1932).—The pump is provided with one or more spirally-shaped suction chambers so arranged that the liquor is given a tangential velocity component before its entrance to the impellor.—J. F. O.

A Sensitive Instrument for Measuring the Air Permeability of Paper and Other Sheet Materials*

By F. T. Carson[1]

Abstract

The new instrument contains a permeability cell of novel design, in which an annular cell surrounds the inner testing cell. By means of this arrangement the usual error from edge leakage is eliminated through the bypassing of the leakage air around the measuring apparatus. The pressures are so adjusted that there is no lateral pressure gradient at the boundary of the test cell and hence no leakage into it. A special pressure regulator has also been designed to maintain a very steady pressure drop across the instrument. The air flow is measured by means of a capillary flow meter, containing four carefully calibrated capillary tubes. The accurate range of the instrument is more than ten thousandfold and approximate measurements can be made over a millionfold range of air permeability values. Since the time element is taken care of in the calibration, tests of relatively impermeable papers are almost as rapid as those of the more porous variety. Results are reproducible on an identical area to within a few tenths of 1 percent. The instrument is well adapted to the testing of leather and some other sheet materials. It will accommodate sheets not thicker than half an inch and it is not necessary to cut the material in order to test it.

Notwithstanding the manifold significance of the air permeability of paper and fiber board, the literature on the measurement of this property reveals a field imperfectly explored and replete with differences of opinion about the influence of such experimental conditions as the pressure difference across the sheet, the area and thickness of the specimen, the duration of the test, the temperature and relative humidity of the enveloping atmosphere. There are practically no established standards in this field.

Under the program for the investigation, development, and standardization of methods and apparatus for evaluating the properties of paper, an investigation of the air permeability of paper was begun at the instance of the Paper Testing Committee of the Technical Association of the Pulp and Paper Industry, which is interested in establishing a standard method of measuring the air permeability of paper and fiber board.

In addition to furnishing information applicable to the formulation of standards in apparatus, procedure, and units of expression, it was anticipated that the investigation would throw some light on the nature of the fibrous structure in a sheet of paper.

The investigation logically divides itself into two parts: The selection or development of a suitable measuring instrument; and the study of the behavior of paper and fiber boards under different experimental conditions and with reference to the theory of the flow of air through minute passages. The provision of an adequate measuring instrument is dealt with in this paper, whereas the other phase of the investigation will form the subject matter of a second publication.

The Problem and the Preliminary Survey

The requirements in the investigation of variables in the measurement of air permeability, and the bearing of the behavior of these variables upon the structure of paper and upon the problem of standardizing the testing method, demand an instrument having a small experimental error and a range sufficient for the testing of a considerable variety of papers and fiber boards. A survey was first made of designs of apparatus described in the literature to see if any of these instruments could be adapted to the rather exacting requirements of the proposed investigation. The literature reveals a score or more of air-permeability measuring devices adapted to the testing of paper and other fibrous sheet materials. Space permits only the most cursory description of these various designs. References appear at the end of this paper for the convenience of the reader who wishes further details.

According to Herzberg (*14*), the earliest form of apparatus was that of Winkler-Karstens, made somewhat on the order of a diminutive gas-meter prover with the paper specimen replacing the upper end of the bell. In this group (group 1) are also the apparatus of Gurley (*28*), Lhomme et Argy (*17*), and Barr (*1*). About three fourths of the designs which have been described make use of some form of measuring flask by which the displacement of a liquid measures the volume of air passing through the specimen, and apparently have been patterned after different forms of gas-measuring and standardizing apparatus. The gas-measuring burette (group 2) is represented by the apparatus of Privett (*21*), that of Bekk (*2*), and another of uncertain origin (*12, 22*). The standardizing flask (group 3) is perhaps most frequently represented in the designs offered. In the apparatus of Sindall (*26*), Ivanov (*15,*) Bergmann (*4*), and Silvio (*25*), the specimen is attached to the flask or disposed in such manner that the inflowing liquid displaces air from the flask through the specimen (subgroup 3a). In the apparatus of Schopper (*14*) and that of Potts (*20*), air which is drawn through the paper displaces liquid into a measuring flask (subgroup 3b). The apparatus of Dalen (*14*) and the Weaver-Pickering apparatus (*7*) make use of a wet meter to measure the volume of air drawn through the paper (group 4). Emanueli (*11*), who placed a capillary flow meter in series with the specimen, appears to be the first to make use of the inferential type of gas meter (group 5) in measuring the air permeability of fibrous sheets. The pressure drop through the capillary and that through the paper he measured with water manometers. He then evaluated the rate of flow of air through the paper from these data and a constant of the capillary. This double-flow-meter arrangement has since been used in several instruments: Larson, Nelson, and Bratz (*16*); Schiefer and Best (*23*); Doughty, Seborg, and Baird (*8*); Edwards (*9*); and

* Research Paper (RP 681), Bur. Stds. J. Res. 12 (May, 1934).
[1] Paper Section, Bureau of Standards, Washington, D. C.

Marsh (*18*). Instruments representative of most of these groups are available from instrument dealers and were studied during the early stages of this investigation.

Most of the apparatus in groups 1, 2, 3a, and some in group 5 are not designed to permit properly conditioned air to flow through the specimen. The study of the effect of experimental variables requires an adjustable pressure difference across the specimen, which can be held constant during a given test. Instruments of group 1 confine the pressure difference to a single, fixed value. The methods employed in groups 2, 3, 4, and 5 to produce a continuous flow of air through the specimen entail either continuous or erratic changes in the pressure difference, unless some means is provided to steady it. A variety of schemes have been used to maintain a constant pressure difference.

The more successful of these employ some form of air vent submerged in water so that a change in line pressure results in a change in the rate of venting rather than in a change in the pressure head. This method, however, is characterized by a continuous pulsation in the pressure difference as the air bubbles form and break away at the end of the submerged vent. Others make use of overflow tanks, large tanks for the displacing liquid, or large reservoirs in the air line, which lessen, but do not eliminate, fluctuations in pressure differences. The auxiliary apparatus is always bulky and not entirely successful. The instruments of groups 1, 2, 3, and 4 require the measurement of the time of the relative displacement of a given volume of liquid, which results in a lengthy and tedious test for papers which are not very permeable. Instruments of the first four groups are, for the most part, suited for the measurement of only a rather narrow range of air permeability. In most of the instruments the area tested is very small. It is difficult to estimate the possible precision of the various instruments, but the precision of those available for study seemed inadequate for the present purpose. Without exception, the accuracy of the score or more of instruments is questionable, chiefly because of leakage or uncertainty in the effective area of the specimen. With few exceptions, no method is provided or suggested for testing the apparatus against leakage.

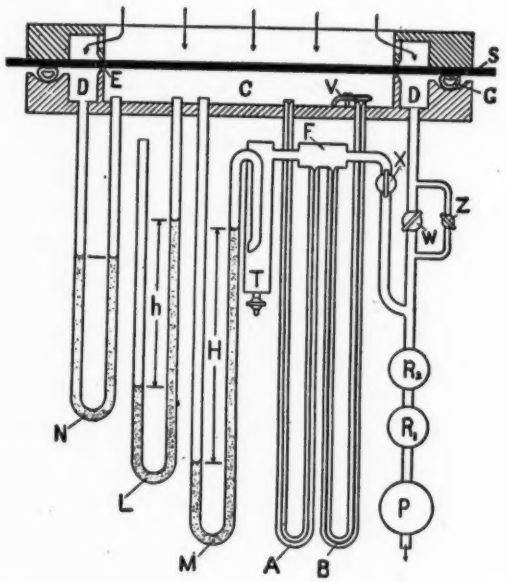

FIG. 1

Schematic drawing of the air permeability instrument developed at the Bureau of Standards.

In general the design of the permeability cell is ineffective in that it fails to insure that all of the air which goes through the nominal test area, and only this air, passes also through the measuring apparatus. This deficiency becomes serious when one is testing materials having rough or uneven surfaces, materials that are not very permeable, or comparatively thick materials. When these characteristics are all found in a single material the existing designs of testing apparatus are taxed entirely beyond their ability to yield a reliable result. Leakage through the edges of the specimen or between the specimen and the clamping surfaces is sometimes very large. During this preliminary study of available instruments, instances occurred of leakage errors as great as the permeability value itself. It is ironical that, while a number of instruments depend upon clamping the sheet between smooth, annual surfaces to prevent leakage, a recent apparatus (*2*) is designed to determine the roughness of paper by measuring the rate of this very leakage between the surface of the paper and the clamping surface. In some instruments rubber gaskets and heavy clamping pressure are used to minimize leakage at the edges. These precautions may suffice for thin, smooth papers in which the leakage through the edges of the specimen is negligible, but even in this case the creeping of the rubber under pressure introduces some uncertainty into the effective area tested. The use of gaskets with thicker materials, however, cannot prevent appreciable amounts of air from passing through the edges of the specimen. The most elaborate precautions have been taken by Wilson and Lines (*31*), Edwards (*9*), Privett (*21*), Marsh (*18*), and Barr (*1*), who designed their permeability cells so that the edges of the specimen are entirely enclosed and sealed off from the atmosphere. This design lessens, but does not eliminate, movement of air in that portion of the specimen confined between the clamping surfaces. Air must still move outward in the upper levels and inward in the lower levels of this region (if the pressure drop is inward). Although perhaps small for thin sheets, the resulting increase in effective area must be appreciable for thicker materials. Experiments with fiber boards indicate that this tendency is especially pronounced in materials having a laminated structure. The design of Barr, in which the annular enclosed space is evacuated to approximately the pressure within the permeability cells, errs in the opposite direction and leads to permeability values which are too low, because the lateral pressure gradient from the upper periphery of the test area to the annular space must cause a portion of the air which should emerge into the permeability cell to be dissipated into the annular space. One can but repeat the complaint of Potts (*20*) that all the familiar air permeability testing devices fall short in some respect.

Development of Suitable Instrument

The preliminary survey, revealed the inadequacy of available instruments for a thorough investigation of variables in the measurement of the air permeability of paper, and indicated the following major requirements in an improved design: Means of eliminating leakage at the edges of the specimen, and means of testing the apparatus as a whole against leakage; means of maintaining a truly constant pressure difference across the specimen while air, conditioned according to the standard method, is drawn through the specimen; a range of at least several thousandfold to cover the usual types of papers and fiber boards; a precise means of measuring the flow of air through the

specimen. A very desirable feature to facilitate the investigation in a design permitting fairly rapid testing of materials of low permeability. An additional desideratum is a fairly large specimen interposed in the air stream.

DESCRIPTION OF NEW INSTRUMENT

Fig. 1 illustrates schematically the apparatus devised for the investigation, and Fig. 2 is a photograph of the instrument.

(a) *Permeability Cell*

The specimen S is clamped between two elements, each of which is composed of a central cavity or cell C and an annular cell DD separated by a circular wall terminating in a narrow edge E, less than half a millimeter wide at the line of contact with the specimen. A rubber ring G makes a seal between the annular cell DD and the atmosphere. Conditioned air at atmospheric pressure is accessible to the upper surface of the specimen above both the lower cells C and DD. By means of an air pump P, air is drawn simultaneously from C and DD, the relative flow being adjusted by valves W and Z (for coarse and fine adjustments) until the two menisci of manometer N are at the same level. Since the horizontal pressure difference across the boundry between the two cells is zero at any level, there can be no edge leakage into or out of cell C. Only the air which comes through that part of the specimen supported above the cell C is admitted to the measuring device, air reaching DD from the upper surface or through leakage at the edges being by-passed around the meter. The pressure drop through the specimen is measured with the manometer L.

The area of the aperature of the cell C is 100 square centimeters. That appreciable sagging or stretching of paper over this large area may be prevented, the specimen is supported by two concentric rings (not illustrated) with very thin contact edges.

Heavy clamping pressure is not necessary. It is sufficient that good contact is made between the specimen and the bounding edge E. In fact, tests made on a smooth, rather permeable paper without any pressure contact whatever on the specimen above the bounding edge E (the paper being held only by a narrow clamping ring directly above the rubber ring G) indicated that there was practically no movement of air across the clamping surface E

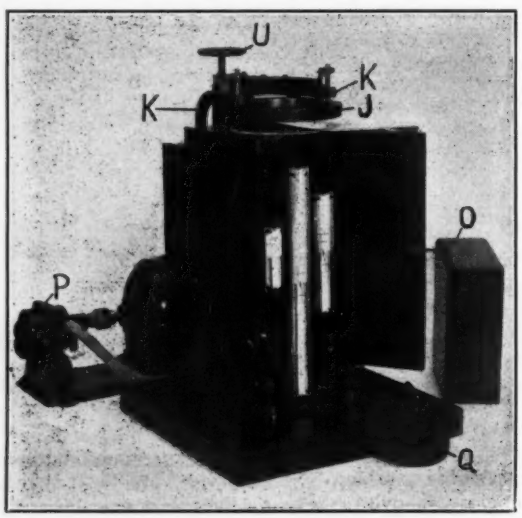

FIG. 2.
Photograph of the new instrument.

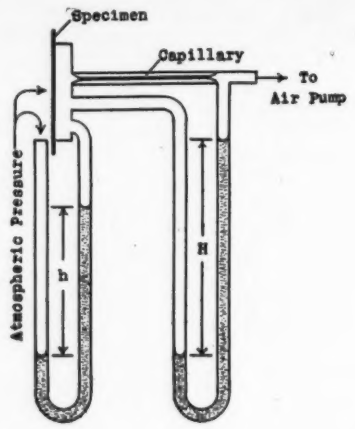

FIG. 3.
Double-flow-meter method used in measuring the air permeability of paper.

when the menisci of manometer N were at the same level. Some detail of the clamping mechanism can be seen in Fig. 2. The clamping ring J is constrained to move vertically by guides in the ends of two L-shaped brackets K, and to register accurately with the permeability cell. It lifts high enough to accommodate any sheet material less than half an inch thick. Since it is always convenient, and sometimes necessary, to test a material without having to cut or specially shape it, the clamp is designed so that it is open on three sides when the ring is lifted. The clamping pressure, which is applied by the handwheel U at the rear, is transmitted through a Y-shaped rocker arm having contact at two opposite points on the clamping ring.

(b) *Means of Measuring Air Flow*

The inferential type of flow meter was chosen as preferable to any of the other types for measuring continuous flow of air through materials having such a wide range of air permeability values as paper and fiber boards. It is more versatile and lends itself to more rapid testing and to compactness in design. The double-flow-meter principle of measurement is illustrated in its simplest terms in Fig. 3, in which a capillary flow meter is placed in series with the specimen arranged as a diaphragm in another flow meter. If the rate of discharge through the capillary tube is known from calibration for all values of the pressure head H, the value of H in any given test immediately shows the rate at which air is passing through the specimen under the pressure difference corresponding to h. Actual measurements of volume and time are not necessary, since these are made once for all in the calibration. In Fig. 1 the calibrated flow meter consists of the manometer M and 4 capillary tubes of different capacities, of which only 2, A and B, are shown.

One end of each capillary tube and one limb of each manometer are connected directly into the bottom of the permeability cell. The other end of each capillary tube is connected into a hollow metal block F, leading to the air pump P. A trap T is placed between the manometer M and this hollow block to prevent the manometer liquid from inadvertently overflowing into the block and entering the capillary tubes. The manometer and trap are connected to the block at the end opposite to the exit to the air pump so that the moving column of air in the hollow blocks is never a part of the connection between the manometer and the capillary in use.

One end of each capillary opening into the cell C is provided with a tap valve V, a detail of which is included

in Fig. 4. A flat metal tab, over which is stretched a section of rubber tubing T, is pressed down on the end of the tubular projection P by means of a screw, making an airtight seal. Any one of the capillaries can be connected into the air stream simply by loosening the screws and turning the tab to one side. The tubular projections P serve also to prevent the manometer liquid from entering the capillary tubes from this end in case of accidental overflow into the permeability cell.

(c) *Glass-To-Metal Joints*

Although the connections of the glass capillaries and manometers to the metallic parts of the instrument can be made satisfactorily with good rubber tubing fastened to short metal tubes soldered into the metallic parts, a neater and more satisfactory glass-to-metal joint is illustrated in partial section in Fig. 4. The metal M to which the glass tube is to be fastened is drilled so as to leave a conical seat as shown. A short section of rubber tubing R is cut with a razor blade on a turning head so as to leave smooth ends. This rubber ring should fit snugly about the glass tube L and loosely in the hole in the metal. A collar C is forced by a yoke Y against the rubber ring, which in turn is squeezed into the annual conical space between the glass tube and the metal. A film of moisture applied to the rubber ring makes it seat more readily. The resulting joint is not only airtight, but is flexible and can be easily renewed when necessary. One yoke serves for two adjacent joints.

(d) *Manometers and Manometer Scales*

In Fig. 2 the manometer on the left with the short scale corresponds to N of figure 1; the long manometer in the center, to M; and the one on the right, to L. Manometer N requires no scale other than a horizontal reference mark. The scales of manometers L and M are graduated in millimeters, and are backed by polished sheet metal, the vertical edges of which are bent so as to mirror the menisci of the manometer liquid just to one side of the manometer tubes in order that one may avoid parallax in reading the pressure heads. Since the scale readings are estimated to tenths of a millimeter, the graduations must be quite uniform. The scales are preferably engraved on metal with a dividing engine. Paper scales, however, may be used if they are adjusted to the proper length by exposure in air of suitable humidity and then cemented to a metal backing with some such adhesive as cellulose acetate. The scales are fastened to the manometers with spring clips and are adjustable vertically for the zero reading. This adjustment, however, need not be exact, since the readings of the two limbs of each manometer are added to obtain the pressure head. Kerosene was chosen for the manometer liquid because water is likely to give false readings unless the manometer tubes are kept scrupulously clean.

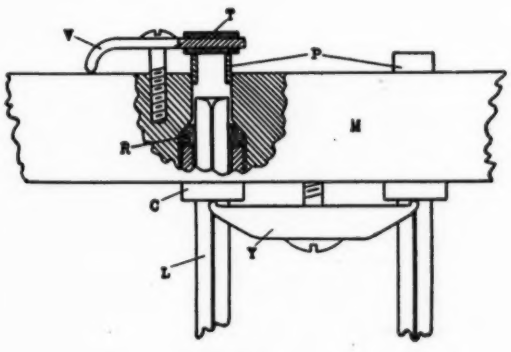

FIG. 4.
Detail of glass-to-metal joint used in connecting manometers and capillary tubes to the instrument.

(e) *Testing Apparatus for Leakage*

The specimen S is replaced by a piece of sheet metal with a soft rubber gasket underneath. A partial vacuum is created in the apparatus and the stopcock X is closed. If there is a leak anywhere (except in the tab-valves) that would affect the air permeability results, it will be indicated by a drop in the head *h* of manometer L. As a test for leakage in the tab-valves, which should be made each time a change is made to a different capillary, cell C is left open at the top, all the capillaries are closed off with their tab-valves, a partial vacuum is created, and stopcock X is closed. Leakage will be indicated by a drop in head *H* of manometer M.

(f) *Selection of Capillary Tubes*

The range of pressure differences selected for the capillary flow meter is 5 to 25 g/cm², the upper limit being chosen chiefly for convenience in design, and the lower to insure precise manometer readings. The range of 5 to 10 g/cm² was selected for the pressure difference across the specimen, since this pressure difference should be kept as small as practicable to prevent undue stretching of the material tested and to simplify the expression of the results. The ratio of the two pressure differences can, therefore, vary through a tenfold range, and hence each capillary used in the instrument will suffice for a ten-fold range of air permeability values if the air flow is approximately proportional to the pressure difference. It was found that most types of paper and fiber board lie within the air permeability range of 0.1 to 5,000 cm³/sec/m²/gcm², and that this range could be fairly well covered with the new instrument by providing it with four capillaries having discharge rates of 0.01, 0.1, 1, and 10 liters per minute at a pressure difference of 25 g/cm².

It is preferable to have the bore of the capillaries as large as possible to minimize the chance of obstruction by foreign particles. A large test area contributes to the possibility of using larger bores for a given permeability range. The capillaries should be of glass that one may more readily detect obstructing particles, since the danger of fouling is the chief objection which has been offered to the use of capillary flow meters. The length should also be as great as practicable, since it must be very great in comparison with the diameter of the bore if the rate of discharge is to be even approximately proportional to the pressure difference. All but one of the capillaries in the instrument are about 2 feet long.

Capillary tubes of the required length and capacity were selected with the help of data published by Benton (*3*) so that the discharge rates at a pressure difference of 25 g/cm² would be well below the critical velocity, since the calibration is very uncertain in the neighborhood of the critical velocity. It is not practicable to select the capillaries from dimensional measurements alone, since very small differences in bore make considerable differences in discharge rate. From a large number of capillaries a considerable number were selected having bores of approximately the desired size. The discharge rates of these were then roughly measured with a previously calibrated capillary flow meter. From these measurements it was possible to select three approximating the requirements enumerated above for the first three capacities. These were bent in a U-shape to conserve space in the instrument. For the largest capacity required a single capillary 2 feet

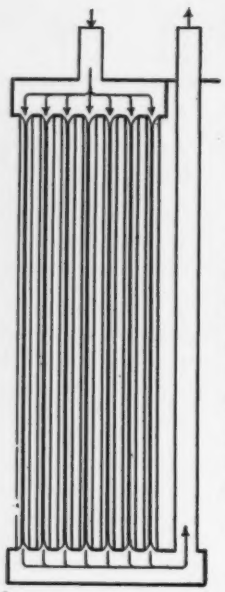

FIG. 5.

Multiple-tube capillary for the larger discharge rates.

long was not satisfactory, since the critical velocity was exceeded for the higher pressure differences. A satisfactory capillary was made by connecting in parallel a number of smaller capillary tubes, as illustrated in Fig. 5.

Air enters through a short connection into a brass tube into which seven straight capillary tubes about a foot long are sealed with a cement specially recommended for sealing glass to metal. The air, after passing through the several capillary tubes in parallel, enters another section of the brass tubing and thence out through a longer connection. The design is such that the multiple-tube capillary can be connected to the apparatus in the same manner as the U-shaped capillary tubes.

(g) *Pressure Regulator*

With manometer readings being taken to a tenth of a millimeter and the line pressure fluctuating over a range of several millimeters or perhaps a few centimeters, very exacting requirements are made of the pressure regulating device. The regulator shown in Fig. 6, a form of diaphragm valve, was designed especially for the requirements of the new instrument. A rubber diaphragm D closes one side of the chamber B, which is about 2 inches in diameter. A hollow post P is adjustable vertically with reference to the diaphragm by means of the nut N threaded over the upper end of the post. The joints are made tight by means of leather washers W, held under mechanical pressure. Air from the chamber B, can pass between the diaphragm and the end of the hollow post, through the orifice into the space H, and out through the hollow cylinder C to the air pump. The desired pressure difference across the air permeability instrument from A to B is obtained by moving the post P up or down. The pressure difference from A to B is the same as that across the diaphragm and is determined by the position of the diaphragm with reference to the orifice in the lower end of the post P. If the pressure in the space H changes slightly because of an irregularity in the action of the air pump, the pressure in B tends to change likewise so as to alter the pressure difference from A to B across the instrument. The slightest change of pressure in B, however, causes the diaphragm to stretch or contract and hence to further close or open the passage from B to H. As a result, the rate of escape of air from B is not changed appreciably, and consequently the pressure in B is not significantly altered. Actually, the weave of pressure in B about the equilibrium position is so small and so rapid that no change can be detected in the manometers except when a very large amount of air is passing through the regulator. When some of the most permeable materials are being tested a very small pulsation can be observed in the manometer levels. Another regulator exactly like the one shown in detail, except for the addition of a needle valve V through which a certain amount of air can be admitted directly from the atmosphere, is placed in the line just ahead of the air pump. Since the air pump operates at a practically constant capacity, this needle valve is used to by-pass varying amounts of air through the pump, the quantity depending upon the amount drawn through the instrument. The first-stage regulator (R_1 in Figs. 1 and 2) is adjusted from a somewhat greater pressure difference than that desired across the instrument and serves to iron out most of the irregularities before the exact adjustment is made by R_2.

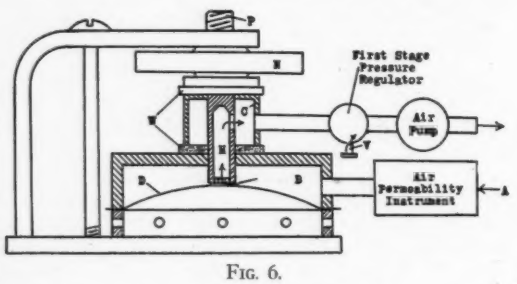

FIG. 6.

Pressure regulator for controlling the pressure drop across the instrument.

For the protection of the instrument when it is not in use the front is inclosed by folding panels, and the cell is protected from dust by a removable cover O Fig. 2.

CALIBRATION OF INSTRUMENT

We have seen from Fig. 3 that the volume of air flowing per unit time through the specimen under a pressure difference $d=\rho h$, where h is the pressure head across the specimen and ρ is the density of the manometer liquid, is the same as the volume ϕ flowing per unit time through the capillary tube under a pressure head H. Since we have chosen to measure ϕ under the pressure at the inlet side of the capillary we should also measure the volume passing through the specimen under the pressure B on the inlet side of the specimen. If we let V be this volume per unit time, then by Boyle's law $V=\phi\frac{B-d}{B}$. The volume ϕ corresponding to H is known from calibration of the capillary, but it is more convenient to have the ratio of ϕ to the corresponding pressure difference tabulated against H, since this ratio is nearly constant for long capillary tubes and hence the interpolations are very simple. It is also convenient to use the ratio of the two pressure heads. The above equation can, therefore, be written:

$$V=\frac{H}{h}\cdot\frac{\Phi}{\rho H}\cdot\frac{B-d}{B}\cdot d \qquad (1)$$

For values of B within 10 per cent of the standard barometric pressure, and d not exceeding 10 g/cm², the value of $\frac{B-a}{B}$ will not differ from unity by more than 1 per cent[2] and will not differ by more than 0.1 per cent from $1-0.001\ \rho h$. Hence equation 1 may be written in the form

$$\frac{V}{Sd}=\frac{H}{h}\cdot\frac{\Phi}{\rho HS}(1-0.001\ \rho h)$$
$$=\frac{H}{h}(1-0.001\ \rho h)\ C \qquad (2)$$

in which S is the effective area of the specimen exposed in the air stream. Although ρ and S are constants of the instrument, the quantity $C=\frac{\phi}{\rho HS}$ is not a constant for a given capillary, but varies somewhat with the pressure difference. The coefficient C have been determined as a function of the pressure head from the calibration of each capillary tube with a primary form of gas meter.

The air permeability of a material can, therefore, be determined by substituting in equation 2 the value of the coefficient C for the capillary used corresponding to the pressure head H, H and h being readings in centimeters taken directly from the instrument manometers and $1-0.001\ \rho h$ being written down by inspection from the value of h and the constant ρ. If ϕ is expressed in cm^3/sec, ρH in g/cm^2, and S in m^2, equation 2 evaluates the air permeability in cubic centimeters per second per square meter of material for a pressure difference of one gram per square centimeter[3] ($cm^3/sec/m^2/g/cm^2$). It turns out that, since S is about 0.01 m^2, the values of C for all four capillaries are greater than unity.

The capillaries were calibrated in place in the instrument, first by a direct method and then by an indirect method. By the direct method, all except the smallest were calibrated by means of a wet meter having a capacity of 0.1 cubic foot per revolution. An accuracy of about 0.2 percent is possible in the measurement of the rate of discharge of a gas with such a meter (29). The calibrating apparatus was arranged in the following order: Atmospheric pressure—capillary—gas meter—pressure regulators—air pump. The apparatus was tested for leaks at frequent intervals. All calibrations were made in the standard atmosphere of 65 per cent r.h. and 21 deg. C. The gas meter was calibrated at intervals during the calibration of the capillaries by the aspirator-bottle method recommended by Waidner and Mueller (29). The stop watch used was also calibrated and the corrections applied to the data. The meter readings were made in multiples of one complete revolution, and the corresponding time interval varied from 3 minutes to 2½ hours. The capacity of the least capillary was too small to make feasible its calibration by means of the wet meter. Instead, air was drawn through this capillary by allowing water to flow out of a 200-cc. pipette connected to one end of the capillary. As a means of overcoming the pulsation arising from the dropwise flow, the water was led off from the discharge tip for a little distance in an inclined trough. As a means of keeping the pressure head constant, the discharge tip was helped at a fixed level while the pipette, connected to it with rubber tubing, was moved vertically with a screw mechanism. The fall in the water level inside the pipette was compensated for by the continuous elevation of the pipette at a suitable rate. The water discharged was caught in a weighing can and weighed on a chemical balance. The resulting weight divided by the density of water at the temperature of the experiment gave the volume of air (measured at the pressure within the pipette) which was drawn through the capillary in a given time and at a given pressure difference across the capillary. In all the calibrations, the measured volume was corrected to the inlet pressure of the capillary. Determinations were made at pressure-head intervals of about 2 cm. on the manometer scale of the flow meter. For each capillary, the values for the capillary coefficients were plotted against the corresponding pressure heads and a smooth curve was drawn among the points. For the two smaller capillaries this was a straight line. With very few exceptions, the points all lay within 0.2 per cent of the curve for each of the four sets of data.

The calibration of a set of capillaries by the foregoing method is very tedious and time consuming. As a convenient means of corroborating the calibration occasionally, and of calibrating replacement capillaries, the standardizing flow meter shown in Fig. 7 was made. It is provided with a set of four capillary tubes very similar to those in the air permeability instrument. These capillaries were calibrated over a somewhat greater range of pressure differences than were the first set. They are kept covered and are never used except for their intended purpose. With this standardizing flow meter connected in place of the gas meter in the calibration train, the capillaries in the air permeability apparatus were again calibrated by this indirect means. The time was, of course, reduced to a small fraction of that required in the calibration by the direct method. The calibrations by the direct and indirect methods agreed to within about 0.3 per cent except for the largest capillary, for which the agreement was within 0.5 per cent.

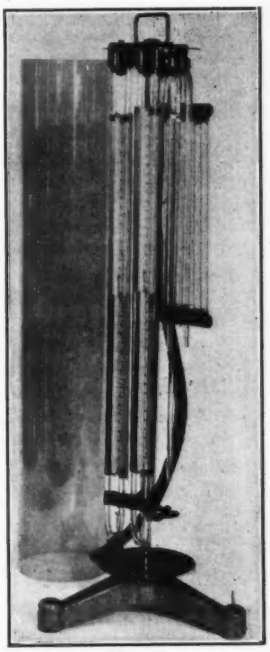

FIG. 7.
Calibrated flow meter for the rapid calibration of capillary tubes.

In Table I are shown coefficients for the four capillaries corresponding to a few values of the pressure difference. The calibration data for the smallest capillary agree very closely with the theoretical flow of a gas through a long capillary tube, but the agreement for the other three capillaries is less and less satisfactory as the capacity of the capillaries increases. If, instead of experimentally standardizing the capillaries, we should adopt the customary procedure (*8, 9, 11*) of calculating the theoretical constant[4] of each capillary from its dimensions and using these values in evaluating the air permeability of paper, we should introduce errors ranging from zero to nearly 50 per cent, depending upon the capillary used and the pressure difference.

TABLE I.—CAPILLARY COEFFICIENTS FOR THE 4 CAPILLARIES OF THE AIR PERMEABILITY INSTRUMENT AT VARIOUS VALUES OF THE PRESSURE DIFFERENCE

Pressure difference g/cm^2	Coefficients C for capillary—			
	C-1	C-2	C-3	C-4
5	1.252	10.31	94.1	749
10	1.249	10.19	88.2	690
15	1.245	10.07	83.3	644
20	1.242	9.95	79.5	606
25	1.239	9.84	76.2	571

As confirmation of the continuity of the calibration from one capillary to the next, air permeability tests were made on 16 papers and boards in the 2 transition intervals of the 4 capillaries, an identical area being tested in each case with each of 2 successive capillaries. In nearly all cases the two values thus determined for each material

[3] Since the variation in air permeability of paper is considerably more than 1 per cent, $\frac{H}{h}$. C in equation 2 represents the value of $\frac{V}{Sd}$ sufficiently well for ordinary testing.

[4] The validity of considering $\frac{V}{Sd}$ constant for a given specimen is demonstrated within specified limits in the second publication referred to in the introduction.

[4] This dimensional constant, divided by the coefficient of viscosity of air, is the limiting value, as the pressure difference approaches zero, of the coefficients in Table I for each capillary, and hence can be determined also by the extrapolation of these values to zero pressure difference.

agreed within 0.5 per cent. This procedure of making overlapping tests on an identical area of a given material by means of consecutive capillaries is a simple and excellent means of periodically testing the capillaries for accidental fouling that might change the calibration. It dispenses with the necessity for recalibration except when positive evidence of the need is indicated.

For convenience in calculating the results of air permeability tests, complete tables have been prepared from the calibration data which give, for each capillary, the coefficients corresponding to the pressure heads. These tables are, of course, applicable only for a particular density of the manometer liquid and a particular test area of the permeability cell.

TABLE II.—AIR PERMEABILITY DATA ILLUSTRATING THE PRECISION AND RANGE OF THE INSTRUMENT

Kind of material	Thickness mm.	Air permeability (in cm³/sec/m²/g/cm) [2] a	b	Difference Per cent
Filter paper	0.25	10,330	10,290	—0.4
Insulating board	11.20	2,564	2,558	— .2
Blotting paper	.50	2,226	2,220	— .3
News print paper	.10	351	349	— .6
Antique book paper	.15	151.1	151.0	— .1
Lined strawboard	1.10	118.7	119.1	+ .3
Supercalendered book paper	.05	86.9	86.9	.0
Tagboard	.25	29.80	29.82	+ .1
Bond paper	.10	10.42	10.37	— .5
Railroad board	.45	2.097	2.100	+ .1
Solid binders board	2.20	1.595	1.596	+ .1
Pressboard	.35	.1501	.1512	+ .7
Vegetable parchment	.10	.013	.014	+7.7

Performance Characteristics

(a) *Precision*

The data in columns *a* and *b* in Table II represent successive tests made on an identical area of a given specimen, and are typical of a great many tests thus made. In the interim between the two tests on each material, the specimen was removed from the tester and the adjustments of the instrument were upset. Most of the data in table 2 have been chosen from results obtained under very exacting conditions, and illustrate other characteristics in addition to precision. In some cases other tests were made during the interim; in some, a day elapsed between the two tests, the specimens being sealed in an airtight package during the interim to prevent appreciable change in the moisture content; some of the stiffer materials were tested first with the supporting ring referred to in a previous section, and then without it; the edges of some of the specimens were dipped in melted wax in the interim between the two tests, and represent a large class of materials referred to in a succeeding section; some specimens were turned upside down for the second test so as to reverse the direction of flow of air, a particularly good example being the lined strawboard which is the most "two-sided" material listed in the table. The agreement of the two results on each specimen is within a few tenths of 1 per cent, except for the last entry, the vegetable parchment, which is far beyond the range for which the instrument was designed.

TABLE III.—DATA ILLUSTRATING THE VARIATION IN THE AIR PERMEABILITY OF DIFFERENT SHEETS FROM THE SAME SAMPLE

Kind of material	Air permeability (in cm³/sec/m²/g/cm²) of sheet number— 1	2	3	4	5
Bond paper	10.98	11.30	11.80	12.33	12.59
Bond paper	206.1	252.1	314.7	355.6	401.9
Ledger paper	24.2	32.0	38.9	47.0	56.0
Map paper	6.41	8.31	9.26	12.05	14.07
Strawboard	160.6	167.5	173.2	176.2	197.1

In contrast with the precision of the instrument, the variability in the air permeability of paper is considerable. Table III shows the air permeability values for five sheets taken from each of several samples of paper and board. The variation may be as little as 5 or 10 per cent, but it is not unusual to find more than 100 per cent spread between the high and low values in a number of sheets from the same sample.[5]

(b) *Accuracy*

It has already been pointed out that an accuracy of about 0.2 per cent is possible in the calibrations method used, and that the agreement in the calibration data by the two methods used was in most cases within 0.3 per cent. Experiments in which the menisci of the manometer connecting the inner and the annular cells were adjusted to slightly different levels indicated that the edge-leakage error is probably not greater than 0.3 per cent when the test is properly made. Experiments which will be discussed in detail in a succeeding paper indicated that the uncertainty in the effective area exposed to the air stream is probably not greater than 0.5 per cent. The readings of the pressure heads are made with an uncertainty of fewer than 5 parts per 1,000. The value for the density of the manometer liquid, the values of the factor $\frac{B-d}{B}$ in equation 1, and the tabulated capillary coefficients are expressed within 0.1 or 0.2 per cent of the calculated values. The air permeability values obtained with the instrument may, therefore, be conservatively estimated to be within 1 or 2 per cent of the true values.

(c) *Rapidity*

Although time saving is not a primary consideration in precise work, it is a desideratum. In contrast with methods employing the principle of the measuring flask, the character of the paper does not influence very much the time required to complete a test with the new instrument. In most cases it is not necessary to consume time in cutting or specially shaping the specimen. After the adjustments have been made, it is necessary to wait only long enough for pressure equilibrium to be established before the readings are taken, the required time being from a few seconds to perhaps 2 or 3 minutes.

(d) *Range*

The air permeability values in Table II cover a millionfold range. With the exception of the most impermeable types and possibly a few extremely permeable ones, which require very low scale readings, practically all papers and fibers boards can be tested for air permeability with a reproductibility within less than 1 per cent.

Special Precaution in Testing Thick, Laminated Materials

There are certain kinds of materials which are built up in layers, permitting air to travel laterally between the layers with far greater ease than through the layers. The new design of permeability cell may be suspected of inability to prevent entirely the leakage of air through the edges and between the layers of such materials into the inner cell, unless the annual guard cell were made inconveniently wide. The chance of error is greatest for laminated boards of low permeability, especially if a relatively porous core separates dense surface layers. When such materials are tested, the edges must be dipped in melted wax or otherwise sealed. The wax seal should extend a little distance into the annular cell. To prove that this seal entirely corrects the leakage error, experiments were made with an extreme case of two sheets of paper superimposed and tested, first with free edges, and then with the edges sealed with melted wax. The two sheets

[5] The inherent variability in structure thus indicated is probably the largest factor in the variable nature of the data commonly found in testing the physical properties of paper, which is more often blamed on the inadequacy of the method than on the circumstance that we probably do not test enough of the material to fairly sample it.

were also tested separately. If a and b are the air permeability values of the two sheets tested separately, the air permeability of the two superimposed should be $\frac{ab}{a+b}$. The results in Table IV show that the error resulting from edge leakage in a laminated material may sometimes be considerable, and that it can be eliminated by sealing the edges in the manner described. Any material having a thickness approaching the width of the guard cell is likely to give trouble unless the edges are sealed. A very large variety of papers and boards were tested both with and without the wax edge seal, and it was found that none of the papers and very few of the boards required the seal. A piece of leather an eighth of an inch thick showed no difference in air permeability when the edges were left free and when they were sealed. A piece of insulating board (not laminated) half an inch thick did, however, show a difference of about 4 per cent.

TABLE IV.—DATA SHOWING THE NECESSITY OF SEALING THE EDGES OF CERTAIN LAMINATED MATERIALS

	Air permeability in cm³/sec/m²/g/cm²					
	Separate sheets		Superimposed sheets			
Kind of material	a	b	Calculated $\frac{ab}{a+b}$	Tested with sealed edges	Tested with free edges	Error without seal per cent
Bond paper	5.77	6.32	3.017	3.022	3.628	20.0
Ledger paper	5.18	5.31	2.621	2,619	2,767	5.7
Wall board	....	....	.....	0.943	1.080	14.5
Binders board	....	....	.....	.771	0.931	20.8

Applications and Limitations of New Instrument

The immediate goal in the development of the new instrument was the study of experimental variables in the measurement of the air permeability of paper and boards, the bearing of these variables upon the structure of paper as revealed through the application of certain theoretical criteria, and the development of information about these variables which might be used in formulating definitions and a standard testing method. This study has been completed and will be described in a subsequent paper.

In addition to the use of the instrument in routine determinations, such as the testing of materials for conformity to specifications, a number of other uses suggest themselves in connection with paper research. It has several times been suggested that the permeability of paper to various processing liquids that do not materially swell cellulose, such as oils, varnishes, waxes, and waterproofing compounds, could be predicted from an air permeability test. The new instrument affords a precise, nondestructive test that might be useful in correlating variations in the common destructive tests, such as tensile, tearing, folding, with variability in the structure of the sheet. It should also be useful in studying the effect of fabrication variables upon the structure of paper, and might turn out to be a valuable control test. Experience with the instrument during the past 2 years indicates that it might be a useful tool in the study of the aging of paper. It holds considerable possibilities in the further study of the structure of paper.

It happens, according to data published by Bergmann and Ludewig (*5*), that the air permeability of leather lies in practically the same range as that of paper and fiber boards, and doubtless this material could be precisely measured with the new instrument without modification.

As the last entry in Table II indicates, there are certain sheet materials generally classified in the category of paper which are below the range of precise measurement with the instrument which has been described in this paper. The problem can best be visualized by reference to Fig. 8. Three sections of the Bureau of Standards have developed permeability measuring instruments with which air permeability measurements have been made within a range of about 10. The range of the instruments developed in the textile section (*23*) and the paper section overlap slightly, so that it is possible to make reliable measurements throughout the regions C and D; but between the ranges which have been covered by the instruments developed in the gas chemistry section (*10*) and the paper section there is a considerable region which is largely unexplored, and for which there is apparently no instrument of suitable design. This region includes a group of semi-papers and pseudo-papers that are usually classified with paper, such as asphalt saturated papers, asphalt films supported between layers of paper, metal foil between layers of paper, vegetable parchment, glassine, cellophane, and thin films of cellulose nitrate and of cellulose acetate. This region is of considerable interest, not only because of the practical significance of permeability of the materials in this range, but also because the nature of results reported for the behavior of materials at the upper and lower limits of the region indicate a transition in the mechanism of transpiration of gases within this range. A particularly attractive possibility of an instrument sensitive in this region is provided by the suggestion that the "grease resistance" of food wrappers might be predicted from their air permeability. The present tests for grease resistance are rather unsatisfactory, and it would be a great boon if these tests could be replaced by such a simple and dependable test as that for air permeability. Permeability instruments now in use for paper testing are inadequate to test out the suggestion.

The region B of Fig. 8 could probably be explored with modified forms of the two instruments which have been used in regions A and C, or by an instrument combining certain features of the two instruments. There appears to be no difficulty in extending the method of measurement with the capillary flow meter down through practically the whole of this region. It is doubtful, however, if it would be sufficient simply to add capillaries of smaller capacity to the instrument described in this paper. The relative significance of edge leakage becomes so great, as the permeability comes within this range, that an experimental study would be necessary to determine the suitability for region B of the method used in region C to eliminate error from edge leakage. It seems fairly certain, however, that a considerable portion of the region B could be explored with the new instrument with no significant changes in design except to replace manometer N of Fig. 1 with an inclined manometer, provide greater sensitivity in the valves that control the adjustment of this manometer, and add suitable capillary tubes of small capacity.

In both region B and region C of Fig. 8 there are papers, such as fruit wrappers and various food wrappings and cartons, for which the permeability to gases other than air is significant. Permeability studies with various gases could probably be made by the further alteration of the

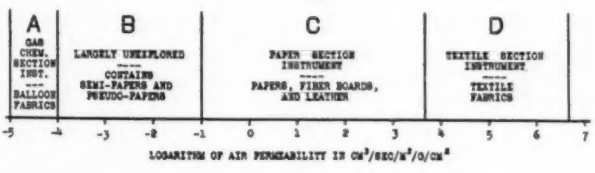

FIG. 8.

Chart illustrating the range of measurements which have been reported for the air permeability of sheet materials, the range covered by the new instrument, and the region which yet remains to be explored.

instrument so as to provide a gas-tight seal outside the annular cell, a plate with suitable connections (Q in Fig. 2) to close the top of the clamping ring and permit the circulation of a gas through the space above the paper, and a means of readily sweeping out the instrument with the gas before a test is begun.

These brief suggestions, together with Fig. 8, will serve to indicate the relation of the new instrument to the problems of permeability as a whole. Applications which have already been made will be discussed in a later paper.

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New York State Plants Most Trees

[FROM OUR REGULAR CORRESPONDENT]

ABANY, N. Y., October 15, 1934—A report issued by the Conservation Department shows that New York State planted 25,098,000 trees during 1933, more than any other state in the country. This was about 42 per cent of the total plantings which amounted to 59,511,754 trees. Pennsylvania was second with the distribution of 7,886,767 trees and Wisconsin came next with 5,093,700 plantings. The files of the Federal Forest Service shows that 16,112,200 trees were planted on state land in New York State in comparison to 1,757,702 in Pennsylvania and 2,055,100 in Wisconsin. Relative to farm land plantings Pennsylvania ranked first with 4,596,799 and New York State next with 4,468,200 trees.

Delaware Valley TAPPI to Discuss Beating and Refining

The first meeting of the Delaware Valley Section of the Technical association of the Pulp and Paper Industry will be held at the Engineers Club, Philadelphia, Tuesday, October 23, at 6:30 P.M.

C. R. Crawford of Shartle Bros. Machine Company, Middletown, Ohio, will discuss "Refining of Stock for Paper." In this paper Mr. Crawford will indicate the necessary equipment for the modern paper makers who want efficient, low power application of new methods.

B. W. Dean of E. D. Jones & Sons Company, will talk on "Beating and Refining Equipment Development." This will deal with a study of the types of machines now in use showing practical operation in conforming with theories of stuff preparation.

The November meeting will deal with Paper Grading and the December meeting with Machine Clothing.

Penn-N. J. Division to Meet

The Pennsylvania-New Jersey Division of the Superintendents Association will meet at Hotel du Pont, Wilmington, Del., Friday and Saturday, October 19 and 20.

On Friday there will be golf and visits to Pusey & Jones and Curtis & Bros. paper mill.

On Saturday the ladies will visit Longwood Gardens. A representative of Midwest-Fulton Machine Company will discuss paper drying. H. H. Hanson of W. C. Hamilton & Sons will talk on paper curling and J. Carl Schmidt of du Pont will talk on colors.

On Saturday evening, W. M. Shoemaker of the National Vulcanized Fibre Company will be toastmaster at a banquet. The speaker will be H. P. Carruth of Dill & Collins, Inc., who will talk on "The Growth of Science in Paper Making."

S. M. Hesser of Hinde & Dauch Paper Company is chairman of the Division.

Lake States TAPPI Discussed Drying

The Lake States Section of the Technical Association of the Pulp and Paper Industry met at the Conway Hotel, Appleton, Wisconsin, Tuesday, October 9. A. T. Gardner presided as chairman.

Because of the resignation of G. H. McGregor as vice chairman, S. D. Wells of the Combined Locks Paper Company was advanced to this position, and R. L. Davis of Consolidated Water Power and Paper Company, Appleton, was made secretary-treasurer.

H. R. Masters of the Coe Manufacturing Company, Painesville, Ohio, was the speaker and discussed "Drainage of Paper Driers."

Motion pictures of interesting phases of the fall meeting of the Association at Portland, Oregon, were shown by Roger Egan of Bulkley, Dunton & Co., Chicago.

Kalamazoo TAPPI Discusses Grading

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry met at the Columbia Hotel, Kalamazoo, Mich., Friday, October 5.

The speaker of the evening was Harry C. Bradford, vice president of the Rex Paper Company who talked on "Some of the Workings of the Book Paper Grading Committee." This dealt largely with coated paper.

Harold Annis of the Allied Paper Mills, Kalamazoo, gave a detailed description of the new brightness tester which is used for grading book papers.

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Freedman & Slater, New York, Hamburg, 1 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Scythia, Liverpool, 4 cs. (simplex).

TRACING PAPER

C. Bruning Co., New York, Hamburg, 18 cs.

TISSUE PAPER

B. F. Drakenfeld & Co., Scythia, Liverpool, 2 cs.; ———, Rex, Genoa, 6 cs.

COLORED PAPER

Borden Riley Paper Co., Dakotian, Antwerp, 7 cs.

BOWL PAPER

Hurley Johnson Corp., Scythia, Liverpool, 25 bls.

COVER PAPER

P. H. Petry & Co., Vancouver, Bremen, 5 cs.

ENVELOPES

Japan Paper Co., New York, Hamburg, 12 cs.

STRAW BOARDS

American Paper Tube Products Corp., Leerdam, Rotterdam, 70 rolls.

CARD BOARD

American Express Co., Pr. Roosevelt, Hamburg, 135 cs.

MISCELLANEOUS PAPER

Iwai & Co., Katsuragi Maru, Kobe, 3 cs.; ———, Nankai Maru, Osaka, 27 cs.; Japan Paper Co., M. Maersk,

Kobe, 13 cs.; Coty Processing Co., Lafayette, Havre, 2 cs.; Japan Paper Co., Leerdam, Rotterdam, 3 cs.; Keuffel & Esser Co., Pr. Roosevelt, Hamburg, 34 cs., 71 rolls.

RAGS, BAGGINGS, ETC.

E. J. Keller Co., Inc., Black Gull, ———, 90 bls. flax waste; E. J. Keller Co., Inc., Black Gull, ———, 127 bls. rags, 215 bls. bagging; Chase National Bank, Black Gull, Antwerp, 45 bls. cotton waste; New England Waste Co., Black Gull, Antwerp, 248 bls. cotton waste; Royal Manfg. Co., Black Gull, Antwerp, 83 bls. cotton waste; N. Schwab & Sons, Black Gull, Antwerp, 86 bls. cotton waste; J. Levy & Sons, Siboney, Havana, 23 bls. rags; Chase National Bank, Siboney, Havana, 125 bls. rags; ———, Siboney, Havana, 115 bls. rags; Castle & Overton, Inc., Paraguayo, Buenos Ayres, 46 bls. rags; E. J. Keller Co., Inc., Pr. Polk, ———, 109 bls. paper stock; E. J. Keller Co., Inc., Exeter, ———, 250 bls. paper stock; E. J. Keller Co., Inc., American Trader, ———, 88 bls. paper stock; E. J. Keller Co., Inc., Scanmail, ———, 48 bls. paper stock.

OLD ROPE

Banco Coml Italiane Trust Co., Alberta, Trieste, 89 coils; ———, Paraguayo, Buenos Ayres, 8 bls.

WOOD PULP

Guaranty Trust Co., Alberta, Trieste, 120 bls. wood pulp; Bank of N. Y. Trust Co., New York, Hamburg, 540 bls. wood pulp, 108 tons; ———, New York, Hamburg, 327 bls. wood pulp, 50 tons; Castle & Overton, Inc., New York, Hamburg, 1727 bls. wood pulp, 345 tons; Castle & Overton, Inc., Leerdam, Rotterdam, 534 bls. wood pulp; Castle & Overton, Inc., Scanpenn, Wiborg, 114 bls. wood pulp, 22 tons.

WOOD PULP BOARDS

Wilkinson Bros. & Co., New York, Hamburg, 75 bls., 16 tons; ———, New York, Hamburg, 27 bls.; ———, Leerdam, Rotterdam, 142 bls.

BOSTON IMPORTS

WEEK ENDING OCTOBER 13, 1934

G. F. Malcolm, Inc., Scythia, Liverpool, 18 cs. tissue paper; E. J. Keller Co., Inc., Eifel, ———, 329 bls. paper stock.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 13, 1934

Philadelphia National Bank, N. Maersk, Kobe, 50 bls. rags; E. J. Keller Co., Inc., N. Maersk, ———, 490 bls. rags; ———, Exchange, Algiers, 197 bls. rags; J. W. Hampton, Jr., Inc., Scanpenn, Wiborg, 68 rolls news print; E. J. Keller Co., Inc., Black Hawk,———, 784 bls. paper stock.

WILMINGTON IMPORTS

WEEK ENDING OCTOBER 13 1934

Lagerloef Trading Co., Scanpenn, Wiborg, 3081 bls. sulphite, 616 tons; Castle & Overton, Inc., Scanpenn, Wiborg, 6362 bls. wood pulp, 1272 tons.

SAVANNAH IMPORTS

WEEK ENDING OCTOBER 13, 1934

New England Waste Co., N. Maersk, Kobe, 800 bls. bagging.

Gummed Products Co. Expands

DAYTON, Ohio, October 8, 1934—The Gummed Products Company of Troy is planning a $150,000 expansion project to begin within the next 30 days, Roth Herrlinger, vice president of the concern, announced today. This will include the addition of new factory space, purchase of considerable new gumming machinery and steam-heating plants for the 50,000 square feet of new building space contemplated. The building program is to be carried on through the winter.

The expansion program will be confined to one-story buildings to be erected on three sides of the present plant, and will include the demolition of the old power plant housed by the 75-year-old red brick building facing Union street, next to the Big Four railroad. The new space will increase about 150 per cent the present territory occupied and will extend to the old Miami and Erie canal bed on both the north and east sides. The company will landscape the new building sites and bring to Troy the most modern of gummed paper factory plants.

A conditional change may be the moving of the office building to another postion on the grounds in order to facilitate the building program.

The announcement is an important one to Troy, indicating as it does the continued growth of one of its substantial industries and the confidence its executives have in the prospects for the future. Furthermore, it will afford much employment during the coming winter months, which is highly desirable.

The Gummed Products Company has made a notable record during the so-called "depression" years. A year or more ago it entered upon an extensive advertising program, largely in trade periodicals, featuring its brands, and this campaign has attracted much attention with satisfactory effects upon the volume of sales.

India's "Wood Free" Mills Prosper

WASHINGTON, D. C., October 17, 1934—Five mills in India manufacture "wood free" papers, i.e., papers with no mechanical groundwood content, according to Trade Commissioner George C. Howard, Calcutta. Through their close price agreement taken in conjunction with a good product and high tariff protection they are seriously competing with imported papers of a similar quality. The "wood free" papers manufactured by this group carries a protective import duty, while newsprint paper and other papers with a groundwood content do not, inasmuch as all the market's requirements for the latter group has to be imported. The largest items in the "wood free" group are white printings and cream laid writings. Some imports are still made of these papers, but the bulk of the business is obtained by the local mills, and a considerable proportion of the imports are such specialties as high grade bonds, ledgers, etc., none of which are individually large items in this market.

Siam To Have Government Mill

WASHINGTON, D. C., October 17, 1934—A Government-controlled paper mill will be established in Siam, within the near future, according to reports coming to the attention of Trade Commissioner Julian B. Foster, Singapore. The mill will be situated at Kanburi, not far from the Burma-Siamese frontier, and will be built to produce 10 tons each of pulp and paper per day. Annual imports of paper into Siam are approximately 5,500 tons annually, Germany and Japan being the principal suppliers, followed by Norway, China, and the United Kingdom.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, October 17, 1934.

Some improvement was noticed in the local paper market during the past week. While demand for the various grades of paper was moderately active, there were a satisfactory number of inquiries around for future account, some of which should materialize into good orders. Prices generally continue steady and unchanged.

The newsprint paper market is exhibiting a stronger undertone and there is much talk of higher prices in the near future, due to increased costs of manufacturing and higher wage rates. According to information gathered by the News Print Service Bureau, the total North American production for September amounted to 297,886.

Demand for fine papers is slightly better, including book, cover and writing papers. Prices are holding to schedule. Tissues are moving in good volume. The coarse paper market is more buoyant, with specialties is seasonal request. Paper board manufacturing operations are being maintained in adequate volume to meet current needs.

Mechanical Pulp

The ground wood pulp market is marking time at present. Production of mechanical pulp in the United States, Canada, and abroad is practically keyed to consumption and the statistical position of the industry remains unchanged. Prices of both domestic and imported ground wood pulp are steady.

Chemical Pulp

Steadiness prevails in the chemical pulp market, although demand for both foreign and domestic grades is rather light. Prices are holding to schedule, in most instances. Bleached sulphite is still quoted at from $2.75 to $2.85 per 100 pounds, on dock, Atlantic, Gulf and West Coast Ports, and all prime easy bleaching at $2.25.

Old Rope and Bagging

While the old rope market continues quiet, sentiment is becoming more optimistic. Demand for both domestic and imported old manila rope is improving slightly. Small mixed rope is fairly active. Prices are steady and unchanged. The bagging market is firmer. Gunny bagging is in good request and scrap and roofing bagging are moving more freely.

Rags

The domestic rag market is beginning to arouse more paper mill interest. Demand for new cotton rags is slightly better. Quotations on No. 1 white shirt cuttings and fancy shirt cuttings are holding up well. Roofing grades are moving into consumption in fairly good volume. Little change is reported in the imported rag market.

Waste Paper

Board mill demand for the lower grades of paper stock is rather listless. The established minimum quotations on No. 1 mixed paper and strictly folded news are still in force. Paper mill request for the higher grades of waste paper is fairly persistent. Hard and soft white shaving and hard white envelope cuttings are displaying strength.

Twine

Conditions in the local twine market are fairly satisfactory. Demand for the various grades is gradually improving and trading in the next few months, at least, should be brisk. Despite the usual keen competition for desirable orders the price level is generally well maintained.

National Safety Council Officers

The National Safety Council, Paper and Pulp Section at its convention in Cleveland, October 1-4, elected the following officers:

General Chairman, H. D. Banta, Hoberg Paper and Fibre Company, Green Bay Wis.; Vice-Chairman in Charge of Membership, E. E. Grant, Crystal Tissue Company, Middletown, Ohio; Secretary and Program Committee Chairman, F. L. Irvin, St. Croix Paper Company, Woodland, Me.; News Letter Editor, T. L. Christensen, Marinette & Menominee Paper Company, Marinette, Wis.; Engineering Committee Chairman, J. H. Turner, Consolidated Paper Corp., Ltd., Grand'Mere, P. Q.; Statistics Committee Chairman, A. E. Winslow, Hollingsworth & Whitney Company, Waterville, Me.; Poster Committee Chairman, J. J. Hastings; Port Huron Sulphite and Paper Company, Port Huron, Mich.; Contest Committee Chairman, A. Scott Dowd, The Paper Industry, Chicago, Ill.; Health Committee Chairman, Dr. E. W. Paine, Hollingsworth & Whitney Company, Waterville, Me.

Members-at-Large: H. G. Gilson, Oxford Paper Company, Rumford, Me.; J. J. Plzak, Consolidated Water Power & Paper Company, Wisconsin Rapids, Wis.; G. J. Adams, International Paper Company, New York; K. L. Faist, Champion Coated Paper Company, Hamilton, Ohio; W. J. Peacock, Northern Paper Mills, Green Bay, Wis.

Netherlands Mills Want Protection

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., October 17, 1934—Netherlands paper mills have been going through exceptionally difficult times, as a consequence of intensified competition from foreign competitors and the shrinkage in their export markets, according to reports from Acting Commercial Attache Don C. Bliss, The Hague. Mills producing wrapping paper and the finer qualities of papers are reported to be operating at 50 per cent capacity or less. Newsprint plants are reported to be working at a financial loss, although their output has been maintained at full capacity, following their campaign to induce publishers to "buy Netherlands." There is no immediate prospect of improvement in the situation unless the mills are successful in their current efforts to induce the Government to protect them by quota.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, October 17, 1934.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are well sustained. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Steadiness prevails in the bleaching powder market. The contract movement is moderately active. Prices are generally holding to schedule, without difficulty. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly active. Domestic standard ground is quoted at 10 cents and finely ground at 11 cents per pound; while Argentine standard ground is offered at 13 cents and finely ground at 13¼ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Conditions in the caustic soda market are satisfactory. Prices are holding to schedule. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is displaying a fairly strong undertone. Prices are steady. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Some improvement transpired in the chlorine market. Demand from the paper mills is more persistent. Prices are unchanged. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is stronger. Paper making gum rosin is quoted a $4.40 and FF wood rosin at $4.50 per 280 pounds, gross weight, in barrels, at southern points. Seventy per cent rosin size is selling at $2.57 per 100 pounds, in tank cars, at works.

SALT CAKE.—Paper mill demand for salt cake is well maintained. Prices are steady. Salt cake is quoted at from $12 to $14, and chrome salt cake at from $12 to $12.50 per ton, at works. Imported salt cake is selling at from $12 to $12.50 per ton, at works.

SODA ASH.—The soda ash market is marking time while awaiting announcement of prices for the forthcoming year. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—Due to fluctuation in quotations on the basic product the starch market is spotty. The contract movement is normal. Special paper making starch is now selling at $3.47 per 100 pounds, in bags; and at $3.74 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—The sulphate of alumina market is in a strong statistical position. Prices remain unchanged. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads the quotation is $21 per ton.

TALC.—Business in the talc market is fairly brisk. Prices are holding to formerly quoted levels, in most instances. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	40.00	@	—
Rolls, spot	40.00	@	—
Sheets	45.00	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	22.00	@	24.00
Dry	23.00	@	24.00

(F.o.b. Mill)

No. 1 Domestic and Canadian	22.00	@	26.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—

(On Dock, Atlantic Ports)

Kraft No. 1	1.70	@	1.80
Kraft No. 2	1.55	@	1.65

(F.o.b. Pulp Mill)

Kraft Domestic	1.70	@	2.25

(Delivered)

Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1 75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	1.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.10	@	1.25
No. 2	.80	@	.85
No. 3	.70	@	.75
No. 4	.65	@	.70
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	2.35	@	2.45
Domestic	2.25	@	2.50
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.80	@	.90
Over issue Mag.	.80	@	.90
Solid Flat Book	.65	@	.75
Crumpled No. 1	.60	@	.65
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.20
News—			
No. 1 White News	1.15	@	1.25
Strictly Overissue	.65	@	.70
Strictly Folded	.42½	@	.50
No. 1 Mixed Paper	.32½	@	.40

New 1/10000 Micrometer

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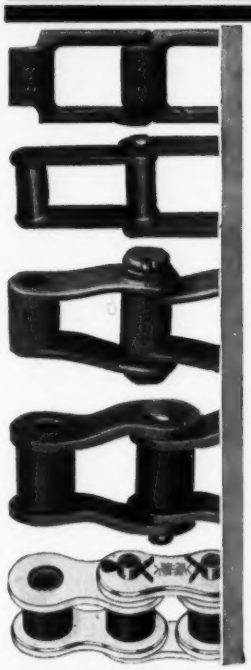

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Link-Belt Malleable Iron Chains have been the standard since 1875, when the first detachable link chain, invented by William D. Ewart, was put on the market by this Company.

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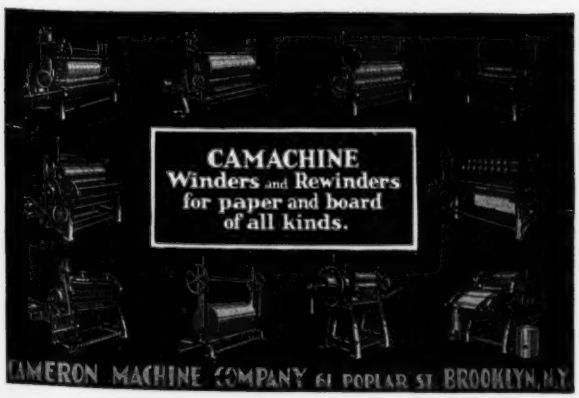


EASTON PAPER MAKERS IMPORTING CO. INC. EASTON, PENNSYLVANIA, U.S.A.

FINEST PAPER CLAYS

Twines
(F. o. b. Mill)

Cotton—			
S. C. 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
Italian 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.15	@	.16
Tube Rope—			
4-ply and larger	.09¼	@	.09¾
Fine Tube Rope—			
4-ply	.11¼	@	.11¾
3-ply	.14¼	@	.14¾
2-ply	.14¼	@	.14¾
Paper Makers Twine	.08¼	@	.13¼
Box Twine, 2-3 ply	.14¼	@	.14¾
White Hemp	.13¼	@	.16¼
Java Sisal—			
No. 1 Basis	.11½	@	—
No. 2 Basis	.10½	@	—
New Zealand Sisal	.11½	@	—
Sisal Lath Yarn—			
No. 1	.13½	@	.15½
No. 2	.11½	@	.13½
Manila Twine	.24½	@	.29½

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.11
Superfine Writing	.18	@	.24
No. 1 M F Book	.06½	@	.07¾
No. 2 M F Book	.05¼	@	.06¾
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04½	@	.04¾
Butcher's Manila	.03¾	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	41.00	@	—
Sheets, open	46.00	@	51.00
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.50	@	.55
Overissue News	.60	@	.70
Old Newspapers—			
No. 1	.50	@	.55
Mixed Papers—			
No. 1	.30	@	.35
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(Delivered Philadelphia)

Bonds	.05-9/10	@	.38
Ledgers	.06 9/10	@	.40
Writings—			
Fine No. 3	.05	@	.06
Superfine	.10	@	.18
Extra Fine	.15	@	.20
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Book, M. F.	.05¼	@	.06¼
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06½	@	.09
Coated Lithograph	.06¾	@	.08½
Label	.07	@	.11
No. 1 Jute Manila	6.25	@	—
Manila Sul., No. 1	5.25	@	—
Manila No. 2	3.00	@	—
No. 1 Kraft	5.00	@	—
Southern Kraft	4.75	@	—
Common Bogus	.03	@	.04½
News Print Rolls	46.00	@	55.00
Straw Board	40.00	@	45.00
News Board	50.00	@	—
Chip Board	45.00	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.65
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.03½	@	.04
New White, No. 2.	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft.	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01½	@	.02
Blue Overall	.03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.10	@	1.20
No. 1 Books, heavy	.65	@	.70
No. 1 New Manila	1.35	@	1.40
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.15	@	1.20
No. 1 Mixed Paper	.32½	@	—
Straw Board Chip	.30	@	—
Binders Board Chip	.30	@	—
Corrugated Board	.50	@	—
Overissue News	.60	@	—
Old Newspapers	.42½	@	—

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.07¼	@	.11
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¾	@	.05
No. 2 Kraft	.03½	@	.04¾

(F. o. b. Boston)

Southern Kraft	.03½	@	.04½

(F. o. b. destination in carload lots, l. c. l. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	44.50	@	—
Straw Board, rolls .009	—	@	35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Chip Board (Creasing)	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	57.50	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.25
No. 1 Soft White	1.75	@	2.00
No. 2 Mixed	.80	@	.85
Solid Ledger Books	1.75	@	—
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.95	@	1.05
No. 1 Books, heavy	.85	@	.90
No. 1 Books, light	.65	@	.75
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.65	@	.70
White Blank News	1.10	@	1.15
No. 1 Kraft	1.05	@	1.10
Manila	.55	@	.60
No. 1 Mixed Papers	.32½	@	—
Print Manila	.45	@	.50
Overissue News	.50	@	.55
Old Newspapers	.42½	@	.45
Box Board Chips		@	.25
Corrugated Boxes	.32½	@	.40
Screening Wrappers	.50	@	.60

Bagging
(F. o. b. Boston)

Manila Rope—			
Foreign	—	@	1.75
Domestic	1.90	@	2.00
Transmission Rope	.90	@	1.00
Mixed Strings	.30	@	.37½
Jute Rope	1.35	@	1.40
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.15	@	1.20
Bleachery Burlap	4.00	@	4.50
Scrap Burlap	1.05	@	1.10
Scrap Sisal	1.00	@	1.25
Scrap Sisal for Shredding	1.10	@	1.25
Wool Tares, heavy	1.25	@	1.30
New Burlap Cuttings	1.45	@	1.50
Australian Wool Pouches	2.00	@	2.25
Heavy Baling Bagging	1.40	@	1.50
Paper Mill Bagging	.90	@	1.10
Bagging No. 2	.50	@	.55

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01½	@	.02
New White No. 1.	.05½	@	.06
New White No. 2.	.03½	@	.04
Silesias No. 1	.04	@	—
New Black Silesias	.02½	@	.03
New Unbleached	.05½	@	.06
Blue Cheviot	—	@	4.65
Fancy	—	@	.02½
Washable	.02¼	@	—
Cottons—According to grades—			
Blue Overalls	—	@	.03½
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03¼
O. D. Khaki	.02¾	@	.03
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.06½

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	3.00
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Twos and Blues	1.25	@	1.50
Thirds and Blues			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Black Stockings	2.25	@	2.50
Roofing Stock			
No. 1	.70	@	.75
No. 2	.65	@	.70
No. 3	.55	@	.60

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.85	@	.95
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.00	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.55	@	1.60
Old Linsey Garments	1.25	@	1.35

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¼	@	—
No. 2 Colored	.09	@	.10
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25¾	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	@	—
No. C. (carloads)	6.20	@	—
No. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.22½	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.25	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	39.50	@	—
Sheets	44.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	50.00	@	55.00
Sulphate	50.00	@	—

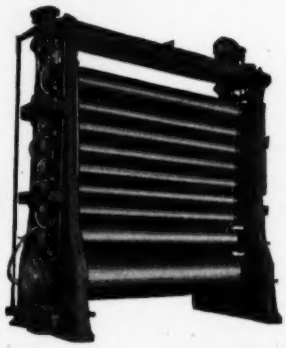
Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.30
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.50
Printed Manilas	.70	@	.60
Kraft	1.25	@	1.50
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.60	@	—
No. 1 Mixed Paper	.50	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06	@	.06¼
Fancy Shirt Cuttings	.02¼	@	.02½

These LOBDELL Products are helping many mills to meet the present "Quality Competition"



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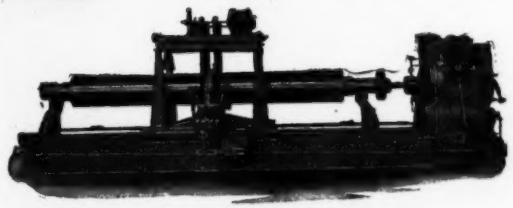

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SIXTY-THIRD YEAR

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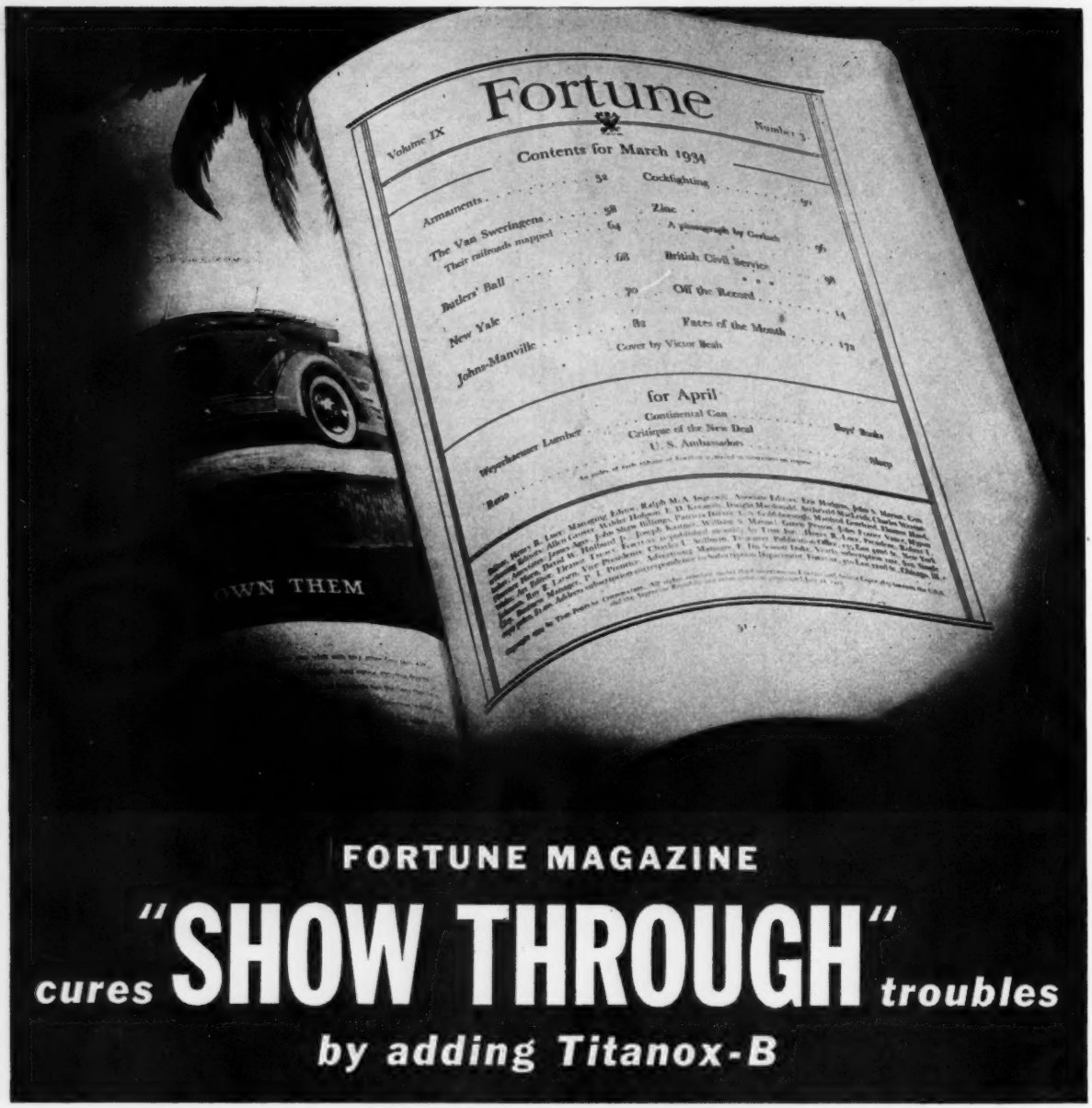

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